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ABSTRACT

This study demonstrated the effectiveness of a reliable, inexpensive method for observing fathers interacting with their preschool children in the home. Fathers in 180 white families were interviewed about their child rearing attitudes and practices, and observed while playing games with their four-year old children. When a factor analysis of the 25 categories of father behavior was performed for boys and girls separately, a different factorial structure emerged for father interactions with sons and daughters. Four father factors with boys were found; two were nurturant in quality and two were restrictive. Six factors emerged for father behavior with girls; the first three were ambivalent in nature (they contained both a restrictive and nurturant component), two were nurturant, and one was restrictive. Striking sex differences were found in the relationships of these factors to children's motivation ratings and to their scores on both the Stanford Binet Intelligence Scale and Piagetian tasks. Father nurturance appeared to enhance boys' motivation to achieve, which in turn increased cognitive scores. There were no significant relationships between father factors and girls' cognitive scores; social class was the best predictor of their cognitive development. (Data collection forms and procedures for administering and scoring are appended).
 (Author/CP)

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UNIVERSITY OF MICHIGAN
School of Social Work

Observed Paternal Behavior
with Preschool Children:
Final Report, April, 1975

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THE UNIVERSITY OF MICHIGAN
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Final Report

April, 1975

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Abstract

The goal of the study was to determine the observable paternal behaviors associated with intellectual functioning in four-year-old boys and girls, and to explore the child's motivation to achieve as a mediating variable between paternal behavior and the child's cognitive performance. An Additional objective was to develop an inexpensive method, acceptable to different social classes, for observing fathers interacting with their preschool children under natural conditions.

One hundred and eighty white fathers were observed at home interacting with their four-year-old youngsters in the presence of a male interviewer. The session was tape recorded and the number of father behaviors occurring in a 30-minute period was computed using preselected categories. Ninety-nine of the children were boys; eighty-one were girls. Sixty-five of the families were middle-class, seventy-one were working class, and forty-four were lower class according to the Hollingshead-Redlich Scale. The children were subsequently tested on the Stanford-Binet Intelligence test and on some Piagetian tasks to determine their intellectual functioning. The youngsters' motivation to achieve was assessed by the testers' ratings of the children's behavior given on the face sheet of the Binet test booklet.

When a factor analysis of the 25 categories of father behavior was performed for boys and girls separately, a different factorial structure emerged for father interactions with sons and daughters. Four father factors with boys were found; two were nurturant in quality and two were restrictive. Six factors emerged for father behavior with girls; the first three were ambivalent in nature (they contained both a restrictive and nurturant component), two were nurturant, and one was restrictive.

Sharp sex and social class differences were obtained in the relationships between the father factors and the child's cognitive scores. For boys as a whole, Father Factor I (a combination of various types of nurturance including reinforcing the child and meeting his explicit needs, and verbally stimulating the child) was positively and significantly associated with Binet IQ and Piaget Verbalizations (explanations of the responses given on the Piaget tasks). This pattern was most evident in middle-class boys where it was seen with both cognitive scores. The pattern was somewhat weaker in working-class boys where only Piaget Verbalizations was associated with the father factor. In addition, middle-class boys showed a significant negative relationship between one of the restrictive father factors, Preventive and Physical Control, and Binet IQ.

The only significant correlation obtained for lower-class boys was also a negative one between a restrictive father factor (Verbal Restrictiveness) and Piaget Mean Total Performance (a mean of the performance levels across all 8 tasks).

For girls as a whole, and for middle-class and working-class female subgroups, there were no significant relationships between father behavior factors and cognitive scores. For lower-class girls, one significant correlation emerged but this may well have been due to chance in view of the large number of correlations computed for each female social class subgroup.

A factor analysis was performed on the 13 items of the Binet face sheet to determine if there was a unitary motivational factor. It was found that there was not, as two factors emerged. They were labelled Person-Oriented Motivation and Task-Oriented Motivation. For boys as a whole, both motivation factors played a mediating role in the positive association between paternal nurturance and the son's intellectual functioning. That is, father's nurturance appeared to enhance the child's motivation to achieve, which in turn enhanced his score on some cognitive measures. Again there were social class differences. The middle-class boys matched this pattern most closely. For working-class boys, only Person-Oriented Motivation intervened in the positive father-child relationship possibly because the cognitive tasks were seen as feminine and the working-class boys were particularly disinterested in such activities. In the lower class, both motivation factors were operative in the negative relationship between paternal restrictiveness and cognitive performance. That is, paternal restrictiveness led to lower motivation to achieve, and this in turn resulted in a diminished intellectual performance by young boys. It was clear that motivation was not the only variable intervening in the relationship between paternal behavior and child cognitive performance since the relationship remained significant for some intellectual scores even when motivation to achieve was controlled with partial equations. Neither motivation factor mediated the one questionably significant relationship between a father factor and a cognitive score for lower-class girls.

Insofar as demographic data were concerned, the pattern was clear. Social class variables were significantly correlated with girls' intellectual performance but not with boys. The lower the girl's social class status, the lower the cognitive score. For boys, it was father behavior that was relevant, not occupation or education. These findings suggest that one must look elsewhere for the explanatory variables antecedent to cognitive growth in girls. Questionnaire data collected from the father during the interview provided indirect evidence that maternal behavior may be a critical factor affecting the girls'

intellectual development. The Cognitive Home Environment Scale, an instrument assessing the intellectual stimulation in the home, was used to engage the father in conversation as his behavior with his child was observed. The responses to that instrument were factor analyzed and one of the 5 factors emerging, Maternal Stimulation (e.g. mother assists the child to learn) was found to correlate significantly with intellectual scores for girls but not for boys. Since there was no significant sex differences in the Maternal Stimulation factor, it appears that mothers did not try to stimulate their daughters more than their sons. Rather, the girls appeared to be particularly susceptible to maternal influence. Possibly at four years of age, girls focus on their mothers as their major role model. The ambivalent behavior by fathers toward their daughters may foster this tendency.

Insofar as the objective of developing a method was concerned, it was attained. The observational technique employed proved to be reliable, valid, and readily acceptable to middle-, working-, and lower-class fathers.

This report covers the period from September 1972 when the project began, until the present time, April, 1975. The overall objectives of the total project are:

- (1) To refine an inexpensive method for observing a father's behavior with his preschool-aged child at home, under relatively natural conditions.
- (2) To determine the observable father behaviors associated with intellectual functioning of preschool-aged white boys and girls, from lower-, working-, and middle-class intact families.
- (3) To determine if sex and social class affect the relationship between father behaviors and intellectual functioning of young children.
- (4) To explore motivation to achieve as a mediating variable in the relationship.

First Year - September, 1972 through August, 1973: In the first year of the project the following goals were met:

- (1) Selecting the sample - One hundred and eighty white, intact families from seven cities in Michigan were studied. The names of 4-year-old subjects were obtained from 12 elementary schools which had older siblings enrolled and information about younger children in the family*. Letters were sent from the school principals, as well as from the principal investigator, inviting families to participate in our study of father-child relations. The father was then telephoned by a male interviewer on our staff and, if the father agreed to participate, an interview was scheduled. Close to 80% of the families contacted agreed to be part of the project, and most of those who refused said it was lack of time which prevented their participation. Based on demographic data obtained during the interview, families were subsequently classified as middle-class, working-class, or lower-class. The Hollingshead (1957) Two Factor Index of Social Position was utilized to determine social class status on the basis of level of education attained and occupational status of both parents. There were no significant social class differences in the percentage of refusals. The final sample consisted of 37 middle-class boys, 28 middle-class girls, 39 working-class boys, 32 working-class girls, 23 lower-class boys, and 21 lower-class girls.
 - (2) Conducting the pretest, i.e., testing the effect of modifying the procedure used in the pilot study (Radin, 1972) - The modification
- * A few children enrolled in preschool programs at the elementary school were also included in the sample.

involves telling the father initially, rather than months later, that we are studying the influence techniques he uses with his child. This modification of the procedure was tried with 20 middle-class and lower-class father-son pairs, i.e., the same subgroups used in the pilot study. The scores obtained on the observed father behaviors in this pre-test were compared, using t-tests, to the scores obtained in the pilot study. For the lower class, of the 26 categories of behavior coded, none of the t's were significant; for the middle class, one t was significant. For the total pre-test sample vs. the 20 fathers in the pilot sample, two of the t's were significant. In view of the above data, it was concluded that the procedural modification did not substantially alter the obtained frequencies of observed father behavior. Hence, all of the other interviews were conducted telling the father the truth immediately.

(3) Interviewing 100 fathers in the presence of their 4-year-old children - The interview was conducted in the subject's home. As requested in the phone call by the interviewer, only the father and the child were present in the room with the interviewer during this time. All verbal and non-verbal behaviors of the father toward his child were recorded with the father's permission. The verbal interactions were recorded on a Sony tape recorder and the nonverbal interactions were included in the notes taken by the interviewer during the session. (Training procedures for the interviewers are described in Epstein, 1974.)* Discussions with the father took between one and one and one-half hours. The interactions between the father and child taking place during the thirty minutes of the interview with the most father-child interactions were subsequently scored according to the 26 behavioral categories (Radin & Epstein, 1973, Appendix A).*

The interview consisted of the Cognitive Home Environment Scale (Radin & Sonquist, 1968) which is a semi-structured questionnaire measuring the degree of cognitive stimulation in the home, and a shortened version of the Torgoff Parental Developmental Timetable (Torgoff, 1967; Stinson, 1972), which asks parental views about the appropriate age that children should master specific tasks and have freedom to engage in specific behaviors. In addition, the interview contained a number of questions designed to elicit demographic data and supplemental information on fathers' child-rearing behaviors and attitudes.

* Appears in appendix of this report.

At the end of the interview, the interviewer gave the child a number of games and puzzles of graduated difficulty to complete. Three Playskool jigsaw puzzles were given first, an easy one (4 pieces), a moderate one (11 pieces), and a hard one (17 pieces). Then the child was given a Lotto board and a set of cards, and told to put the card on the board square with the same picture. Finally, each child was given a color-form board, designed by a project member, and told to place cut-out squares, triangles, and circles of various colors into the appropriate hole on the color-form board. (A picture of the color-form board appears in the Training Manual, Epstein, 1974.)* The father was invited to help the child with the puzzles and games or not, as he wished. Verbal and nonverbal interactions between the father and the child during these tasks were recorded in the same manner described above. These task interactions (referred to as game or puzzle interactions in the Coding Manual and Appendices) were subsequently scored according to 18 behavioral categories which were theoretically comparable to behaviors looked at in the 26 father-child categories from the interview. Scoring procedures for the task interactions are described in Radin and Epstein (1973, Appendix C).*

(4) Determining the reliability of the observational data by re-interviewing 20 fathers - To test the reliability of the observational data per se, a second interview was carried out with 20 fathers picked from all three classes, who agreed to participate in another interview within 1 month of the initial interview, with their son or daughter present. The mean frequencies of the 26 father behaviors on the first and second visits were compared using t -tests. No significant differences were found in behavioral frequencies, and it was concluded that the observational data obtained in the interviews were reliable.

(5) Administering the DeVries (1971) Piagetian tasks, the Veroff (1969) measure of Autonomous Achievement Motivation, and the Stanford-Binet Intelligence Scale to the children - Within a few weeks of the interview, families were re-contacted and appointments made to have their children participate in two individual testing sessions. Fathers had been told that this procedure would be followed. The testing sessions were generally held at the school where the children would be attending kindergarten. In the first session, a series of 8 Piagetian tasks developed by Rheta DeVries (1971) was administered. (Detailed instructions appear in appendix of this report.)

tions for scoring the tasks can be found in Radin & Epstein, 1973, Appendix D.)* In the second testing session, Veroff's (1969) measure of Autonomous Achievement Motivation was administered. (Scoring procedures are described in Radin & Epstein, 1973, pp. 11-12.)* The Stanford-Binet Intelligence Scale was also given in the second testing session. After the intelligence test was completed, but before an IQ was computed, the testers rated each child on the 13 items on the face sheet of the Binet booklet. (Rating criteria are described in Radin & Epstein, 1973, Appendix B.)* The mean of these 13 ratings yielded a measure entitled Motivation to Achieve While Taking the Binet (Radin, 1971; 1974).

All the above tests were administered by trained psychologists. A different tester administered the instruments in each session. Training procedures for Piaget and Veroff-Binet testers are described in Epstein (1974).*

Second Year - September, 1973 through August, 1974: In the second year of the project the following goals were met:

(1) Determining the reliability of the scoring procedures for all instruments - Inter-rater reliability was computed using Cartwright's Alpha (1956), which yields the percentage of agreement between two scorers. For each instrument, two or more researchers independently scored the protocols of between 10 and 20 subjects. The following levels of inter-rater reliability were obtained: (a) Father-Child Interactions - reliability between the first and second coder ranged from 78.0% to 95.0%, with the average reliability being 88.9%; reliability between the second and third coder ranged from 73.1% to 96.5%, averaging 87.4%; (b) Cognitive Home Environment Scale (hereafter abbreviated as CHES) - reliability ranged from 82.0% to 93.0% with an average of 92.3%; (c) Open-Ended Interview Questions - reliability ranged from 83.9% to 100% and averaged 93.7%; (d) Interactions while child performed tasks - inter-observer reliability ranged from 69.8% to 90.4% with the average being 82.9%; and (e) Piaget Scores - inter-rater reliability in scoring children's performance on the tasks ranged from 95% to 100%, averaging 97.3%. In addition, a category system was devised (Radin & Epstein, 1973, Appendix D),* based on DeVries' scoring procedures, for scoring the children's explanations of their choices or responses on the 8 tasks.

*Appears in appendix of this report.

For this measure, entitled Piaget Verbalizations, reliability ranged from 91.0% to 100%, with an average of 95.3%.

(2) Writing a detailed scoring manual for Father-Child Interactions - This manual appears in Appendix A of Radin & Epstein (1973). A copy is attached in the appendix of this report.

(3) Writing a detailed scoring manual for Interactions during Tasks - This manual appears in Appendix C of Radin & Epstein (1973). A copy is attached in the appendix of this report.

(4) Writing a detailed coding manual for all data to be entered into the computer - This manual (Radin & Epstein, 1973) contains complete instructions for administering, scoring and coding all the measures derived from information obtained during the interviews and in subsequent testing sessions with the children. A copy is attached in the appendix.

(5) Determining the factorial structure underlying the observed father behaviors - The principal components were extracted and a varimax rotation was performed with the father-child interaction categories. The Scree test (Cattell, 1966) was used to determine the number of factors to rotate to obtain the simplest factorial structures for the behavior of fathers with sons and with daughters. Coefficients of congruence were computed between father-son behavior factors and father-daughter behavior factors. Two significant correlations using the methodology of Schneewind & Cattell (1970) were obtained of the 24 possible correlations. These results are described below. Further discussion of these findings appear in an attached paper (Radin & Epstein, 1975).

The four factors which emerged for boys were labelled: (1) Positive Response to Child and Cognitive Stimulation - This factor included meeting the expressed needs of the child such as hunger and thirst, involving the child in the interview by asking him questions or conversing with the child, and praising the child's behaviors during the interview; (2) Empathy and Psychological Manipulation - This factor included consulting with the child to determine his wishes, and meeting the perceived needs of the child even though the child had not explicitly communicated these needs, e.g. getting a pillow for the child who yawned and rubbed his eyes; (3) Preventive and Physical Control - This factor included warning the child beforehand not to do something or physically reacting

to the child's actions in an aversive manner; (4) Verbal Restrictiveness - This factor included giving orders to the child in either an aversive or non-aversive manner without explaining the reasons for these orders, threatening the child, or directing other aversive statements to the child such as name-calling. Table 1 contains the factor loadings of the categories on the father-son behavior factors.

The six factors found for girls were labelled: (1) Meeting and Ignoring Explicit Needs - This factor included both meeting the expressed needs of the child on the one hand, while at other times ignoring or refusing to meet these needs, or continuing to talk to the interviewer when the child tried to enter the conversation; (2) Aversive and Non-Aversive Control - This factor included the father's structuring the environment to prevent unwanted behavior and providing an explanation whenever an order was given, but also threatening the child; (3) Verbal Restrictiveness and Requesting - This factor correlated significantly ($r=.83$) with factor #4 for boys. It included giving orders without explanations to the child in an aversive or non-aversive manner, addressing other aversive statements to her, or requesting in a kind or neutral voice that the child do something for the father such as bringing him an ash-tray; (4) Empathy, Psychological Manipulation, and Cognitive Stimulation - This factor correlated significantly with factor #2 for boys ($r=.91$). It combined consulting, coaxing, and meeting implicit needs with involving the child verbally in the interview and praising her behavior; (5) Attention to Child's Verbalizations - This factor included correcting the child's errors, and the father's stopping his own talking to listen to his daughter's conversations; (6) Physical Restrictiveness - This factor like the second component of boys' factor #3, included physically reacting to the child's actions in either a neutral or an aversive manner. Table 2 contains the factor loadings of the categories on the father-daughter behavior factors.

It is interesting to note that while the first two factors found for boys can be regarded as nurturant and the other two factors as restrictive or controlling, only the last three factors for girls are clearly nurturant (#'s 4 and 5) or restrictive (#6). The first three factors of fathers' interactions with girls contain "mixed messages", in that they each combine both nurturant and supportive behaviors with restrictive and punitive elements.

(6) Determining the factorial structure underlying the face sheet items of the Binet - The principal components were extracted and a varimax rotation was performed with the 13 face sheet items. The Scree test (Cattell, 1966) was used to determine the number of factors to rotate to obtain the simplest factorial structure. Two factors emerged when this procedure was employed which were labelled Person-Oriented Motivation and Task-Oriented Motivation (Epstein & Radin, in press).*

(7) Determining sex and social class differences in the frequencies of father-child behaviors, and children's cognitive and motivational measures - In spite of the difference in factorial structures, the frequencies of only two father-child behavior categories showed significant sex differences. Partially Meeting Explicit Needs and Non-Aversive Order Without Explanation were significantly higher in boys than girls. Fathers also showed significantly more non-nurturance (a cluster made up a priori of 2 categories, ignoring and refusing to meet the child's needs) towards boys than girls. Middle-class fathers were significantly higher than working- and lower-class fathers on a number of nurturance categories, and total nurturance, a group of behaviors combined on an a priori basis (Radin, 1972; 1973), was greater in the middle class than in the lower class. Middle-class fathers also displayed significantly more non-nurturance towards children than lower-class fathers. There were no significant social class differences in restrictive behaviors, another cluster of behaviors grouped on an a priori basis (Radin, 1972; 1973). These class differences support prior findings (Radin, 1972).

For boys' father factors, lower-class families had significantly lower frequencies of Positive Response and Cognitive Stimulation when compared to middle- and working-class families. In addition, lower-class fathers displayed less Empathy and Psychological Manipulation towards sons than working-class fathers. For girls' father factors, the middle class was significantly higher than the working class on Meeting and Ignoring Explicit Needs, while working-class fathers showed less Attention to Child's Verbalizations than did fathers of lower-class girls.

Two-way analyses of variance were performed using sex and social class as the independent variables, and children's cognitive and motiva-

*Attached in the appendix of this report.

tional measures as the dependent variables. Table 3 presents the analyses of variance for the cognitive measures, i.e., IQ, Piaget MTP, and Piaget Verbalizations. A significant social class effect was found in IQ scores and Piaget Verbalizations. Post-hoc comparisons revealed that middle-class children scored significantly higher than lower-class children on Piaget Verbalizations ($t = 3.04$, $df = 107$, $p < .01$), and higher than both working-class children ($t = 2.28$, $df = 1.33$, $p < .05$) and lower-class children ($t = 2.77$, $df = 106$, $p < .01$) on Binet IQ. There were no significant sex or interaction effects in children's cognitive measures.

Table 4 presents the analyses of variance for the Binet Face Sheet and Veroff motivational measures. No significant sex differences or interaction effects were found in any of the motivational measures, i.e. the Veroff measure, the mean score for Motivation While Taking the Binet, and the two factors emerging from the face sheet items, Person-Oriented Motivation and Task-Oriented Motivation. There was a social class effect only for Task-Oriented Motivation. Post-hoc comparisons indicated that the lower class was significantly lower than the middle class ($F(1,106) = 6.63$; $p < .01$) and also significantly lower than the working class ($F(1,11) = 6.68$; $p < .01$).

Since the recording technique used did not permit recording child behaviors, a measure related to the child's interpersonal activity level as well as motivation, and labelled Child Initiates, was computed by adding the frequencies in those father-child categories where paternal behavior was clearly in response to the child's directing an activity specifically towards the father. The items were Fully Meeting Explicit Needs, Partially Meeting Explicit Needs, Not Meeting Explicit Needs, Stops to Listen When the Child Talks, and Continues Talking When the Child Talks. A one-way analysis of variance revealed that boys scored significantly higher than girls on the Child Initiates variable ($t = 2.55$, $df = 178$; $p < .05$).

(8) Determining the correlations between the father behavioral factors and measures of the child's intellectual functioning - Pearson coefficients of correlation were computed between father factors (4 in the case of boys and 6 in the case of girls) and children's IQ and Piaget scores. Table 5 presents the correlations between father

factors and cognitive measures for all boys and boys' subgroups; Table 6 presents the correlations for all girls and girls' subgroups. The significant correlations for boys' father factor I (Positive Reinforcement and Cognitive Stimulation) were with IQ for all boys ($r = .25$) and for middle-class boys ($r = .36$). This same factor was also significantly correlated with Piaget Verbalizations in all boys ($r = .33$) and middle-class and working-class boys ($r = .39$ for both groups). Boys' father factor III (Preventive and Physical Control) was negatively correlated with IQ in middle-class boys ($r = -.41$), while factor IV (Verbal Restrictiveness) was negatively correlated with Piaget Mean Total Performance (an average of the child's performance levels across all eight tasks) and Piaget Verbalizations in lower-class boys (r 's = $-.41$ and $-.45$ respectively). These data support Radin's (1972) prior findings.

No significant correlations were found between father factors and cognitive measures for girls as a whole. One significant correlation was found between girls' father factor I (Meeting and Ignoring Explicit Needs) and Piaget Mean Total Performance in lower-class girls ($r = -.50$). However, since this was the only significant correlation among the 54 computed for the girls' subgroups, this significant association may have occurred by chance. It was hypothesized that the absence of links between the father's behavior and his daughter's cognitive competence was related to the fact that she is using her mother as her major role model. It is also possible that the father's ambivalent behavior towards his daughter tends to alienate her from him so that even purely nurturant father-daughter behavior factors fail to correlate significantly with measures of the girl's intellectual ability.

(9) Determining the predictors of the child's intellectual competence using the father behavioral factors and demographic data as independent variables - To predict each of the cognitive measures, regression equations were computed for each sex separately using IQ, Piaget Verbalizations, and Piaget Mean Total Performance as dependent variables and the father behavior factors and father's education and occupation as independent variables. Table 7 presents the significant predictors for all boys and boys' subgroups; Table 8 presents the significant predictors for all girls and girls' subgroups. For boys as

a whole, a significant multiple R was obtained when IQ and Piaget Verbalization were the dependent variables. The first and only significant variable to enter the equations in both cases was the father factor, Positive Response to the Child and Cognitive Stimulation. None of the other predictor variables significantly increased the multiple R. For girls as a whole, a significant multiple R was obtained for all three cognitive measures. In each case, the first predictor variable was father's occupation. Again, the percent of variance explained (multiple R squared) was not significantly increased by any of the other predictor variables. Forcing father's education into the regression equation as the first independent variable did not alter the above findings for boys or girls, with one exception. For girls, with Piaget Mean Total Performance as the dependent variable, there were no longer any significant predictors.

Regression equations were computed for the various sex/social class sub-groups with each of the dependent variables. Differences in predictor variables emerged. In three instances, two father behavior factors were significant predictors. For middle-class boys, Positive Response and Cognitive Stimulation with a positive association and Preventive and Physical Control with a negative relationship, accounted for 30% of the variance in Binet IQ. Further, for middle-class boys, Positive Reinforcement and Cognitive Stimulation with a positive association, and Empathy and Psychological Manipulation with a negative relationship explained 25% of the variance in Piaget Verbalization scores. For lower-class girls, with Piaget MTP as the criterion variable, there were two significant predictors, both negatively related, Meeting and Ignoring Explicit Needs and Aversive and Non-aversive Control. These two father behavior factors together with one suppressor variable (the factor Physical Restrictiveness) accounted for 49% of the variance in Piaget MTP. Forcing father's education into the regression equations first did not alter these results.

(10) Determining the role of motivation to achieve as a mediator between the father behavioral factors and measures of the child's cognitive competence - To explore the possible mediating role of motivation, partial correlations were computed whenever a significant correlation was found between a father factor and one of three measures of cognitive functioning, i.e., IQ, Piaget Mean Total Performance, and Piaget

Verbalizations. (These significant correlations are summarized in #8 above.) The motivational variables employed in the partial correlations were Mean Motivation While Taking the Binet, Person- and Task-Oriented Motivation, Veroff Autonomous Achievement Motivation, and Child Initiates.

For all boys, middle-class boys and working-class boys, motivational measures derived from the Binet face sheet acted as intervening variables in the positive relationship between boys' father factor I (Positive Reinforcement and Cognitive Stimulation) and the sons' cognitive competence. In addition, for middle-class and lower-class boys, Binet-derived motivational assessments mediated the negative correlations between boys' father factor III (Preventive and Physical Control) or IV (Verbal Restrictiveness) and intellectual measures. Neither Autonomous Achievement Motivation nor Child Initiates mediated relationships between paternal and child measures for boys, and none of the motivational measures intervened in the single significant correlation found for the sub-group of lower-class girls.

(11) Informing the participating families and schools of the results obtained - A summary of the first-year findings (Radin & Epstein, 1974b) was sent to all parents and school principals participating in the project. In addition, test scores for individual children were sent, upon written parental permission, to the school where the child would be attending kindergarten. Information about interpreting the Piaget measures (Epstein & Radin, 1973) was sent together with the individual scores to assist principals and teachers in using these results.

(12) Obtaining parental permission, then re-testing children in the Piagetian tasks and the Stanford-Binet Intelligence Scale - Of the original sample of 180, 159 parents, or 89%, agreed to have their children re-tested. Table 9 presents the percentage of children re-tested in the total sample and in the various sub-groups. There were no significant differences in the percent of children retested according to sex, social class, or sex/social class subgroups. Among the 22 families where children were not tested the second year, 60% could not be located, 30% of the parents did not give permission to retest, and 10% had moved too far away to permit retesting. Training procedures for the testers were the same as those followed the first year (Epstein,

1974).^{*} However, the Veroff measure of Autonomous Achievement Motivation was not administered the second year because only a limited number of significant results had been obtained with this time-consuming measure.

Third Year - September, 1974 through August, 1975: The following goals have been met during the final project year:

(1) Determining the relationship between the Cognitive Home Environment Scale (CHES) and paternal and child measures - Results emerging from analyses with the CHES are discussed in detail in the attached papers (Epstein & Radin, 1975; Radin & Epstein, 1975). Only the major findings are summarized here.

The principal components were extracted and a varimax factor rotation performed with the 25 CHES items. Five factors emerged which were labelled Future Expectations, Father Stimulates Child, Mother Stimulates Child, Use of External Resources, and Grades Expected. These 5 factors had low inter-correlations, indicating that there are several dimensions underlying the CHES and that a total score should not be used. Significant and predictable social class differences emerged on four of the five factors, indicating that the CHES is sensitive to the fact that the degree of cognitive stimulation in the home diminishes with decreases in social class status. In addition, four of the five CHES factors correlated positively and significantly with children's cognitive measures, even when social class was controlled, indicating that more than social class is affecting the scores.

Major sex differences in paternal behavior and attitudes towards preschool boys and girls were reflected in the correlations of CHES factors with father behavior factors and children's variables. For boys, reported paternal stimulation on the questionnaire was positively correlated with observed paternal stimulation. Fathers' short-term educational expectations for their sons reflected the boys' cognitive ability; fathers' long-term hopes did not. Fathers' future expectations for outgoing daughters differed according to social class, with middle-class and working-class fathers having lower expectations for their more active daughters and lower-class fathers having greater hopes for their outgoing daughters' futures. Maternal stimulation, as reported by fathers, was positively correlated with girls' cognitive measures

^{*}Appears in appendix of this report.

and assertiveness, but was unrelated to boys' intellectual performance. The latter finding tended to support the hypothesis that mothers are an important influence on four-year-old girls.

Finally, the observed father behavior factors, the reported paternal CHES factors, and demographic variables (father's education and occupation) were entered into step-wise multiple regression equations to predict children's cognitive scores. CHES factors were particularly important predictors in lower-class subgroups, perhaps because of the problematic nature of stimulation in the lower-class home. Multiple regressions, like the correlations, also revealed important sex differences. For boys as a whole, the observed father factors were much more salient than the reported CHES factors in predicting the boys' cognitive ability. For girls as a whole, the reverse was true; CHES factors, more often than observed father behavior factors, predicted girls' intellectual measures. Sex differences were explained in terms of children's modelling the same-sexed parent. Thus, boys' cognitive development may be dependent upon their identifying with and modelling the behavior of their fathers. Girls' intellectual growth however, may be dependent upon other sources of stimulation in the home, particularly those provided by the mother. It was also hypothesized that the link between paternal behavior and four-year-old sons is direct, whereas it is mediated by the mother, and hence indirect, in the case of fathers and their four-year-old daughters. Here it is possible that fathers' future expectations influence mothers' stimulating behaviors, which in turn enhance their daughters' cognitive functioning.

(2) Examining the follow-up data obtained in the second year of cognitive and motivational testing with the children - In light of the significant negative correlations between the initial scores and change scores in cognitive measures (i.e., for IQ, $r = -.54$, $p < .001$; for Piaget MTP, $r = -.41$, $p < .001$; and for Piaget Verbalizations, $r = -.49$, $p < .001$), it was decided not to examine the change scores because of the difficulty in interpreting them. Controversy exists over the appropriate statistical handling of these data, and the resources of the project did not permit alternate procedures, e.g., regression equations, partial correlations, analyses of covariance, etc.

Children's scores on second-year cognitive measures were correlated

with whether or not they attended preschool to control for any effects which preschool attendance might have on kindergarten scores. There were no significant correlations between preschool attendance and children's second-year intellectual scores, so it is justified to assume that any group differences in cognitive measures can be attributed to other factors.

Two-way analyses of variance were computed to examine the effects of sex and social class upon children's actual scores on second-year cognitive and motivational measures. Table 10 presents the results for cognitive measures; Table 11 presents the results for Binet-derived motivational measures. No significant sex effects were found in either cognitive or motivational measures. A significant social class effect was found only for the cognitive measure, second-year Piaget Verbalizations. Post-hoc comparisons indicated that the middle class was significantly greater than the working class in second-year Piaget Verbalization scores ($t = 2.79$, $df = 113$, $p < .01$). In addition, there was a significant interaction effect on this measure such that middle-class girls had significantly higher Verbalization scores than both working-class girls ($t = 2.98$, $df = 50$, $p < .01$) and lower-class girls ($t = 3.01$, $df = 39$, $p < .01$). Results on second-year Piaget Verbalizations are similar to the social class differences found with this measure in the first year (see Second Year, item #7). The fact that this social class difference in Piaget Verbalizations was found for girls, but not for boys, may be due to the more advanced verbal development of young girls in comparison to young boys (Maccoby, 1966). Because the ages of 4 and 5 years are important to the growth of verbal behavior for girls, social class factors which enhance or limit this growth become salient for the young girl. For boys, whose development at this age may be concentrated in nonverbal areas, social class differences related to verbal development are less important.

Pearson coefficients of correlation were computed between the a priori father behavior groups (i.e. Nurturance, Non-nurturance, and Restrictiveness) observed during the first year, and children's second-year cognitive measures. There were no significant correlations between these father behaviors and the follow-up scores on IQ, Piaget MTP, or Piaget Verbalizations. Similarly, none of these three a priori father measures assessed in the first year were significantly correlated

with children's Binet-derived motivational measures in the second year. Possible explanations for these findings will be discussed below.

Correlations computed between observed paternal behavior factors assessed when the child was four years of age, and cognitive and motivational measures assessed when the child was five years of age revealed only one significant correlation. The boys' father factor, Empathy and Psychological Manipulation, was negatively correlated with second-year Task-Oriented Motivation in middle-class boys ($r = -.36$, $p < .05$). There were no other significant correlations between father variables assessed during the interview itself and second-year children's measures. Again, the fact that only one significant correlation was found between observed father behaviors in the first year and children's cognitive and motivational measures in the second year will be discussed below.

There were a great many significant correlations however, between paternal behaviors assessed while the child completed tasks at the end of the interview, and second-year cognitive (IQ, Piaget MTP, Piaget Verbalizations) measures for the children. Because the task situation was included primarily for exploratory purposes, a factor analysis of these task interactions was not performed. However, the behavioral categories were grouped on an a priori basis into Task Nurturance, Task Non-nurturance, and Task Restrictiveness according to their theoretical comparability with the three a priori father-child behavior groupings derived from the interview interactions. Further, the relationship between paternal behavior as the child completed tasks and concurrent child measures can be contrasted with the relationships between paternal behavior as the child completed tasks and follow-up child measures. This permits some hypotheses about the direction of influence in the concurrent measures, i.e., whether influence goes from father to child or child to father.

Table 12 contains the significant correlations between these first-year task interactions and children's first- and second-year cognitive measures. It was found for the total sample that only Task Nurturance was significantly and negatively correlated with concurrent cognitive measures whereas both Task Nurturance and Task Restrictiveness had significant negative correlations with children's cognitive assessments from the following year. Examining the first-year correlations alone,

two explanations are possible. One could say that the father's nurturance while the child is solving a problem inhibits the child's exploration and hence limits the cognitive development of the child. Alternatively, the first-year correlations could indicate that the less able child elicits more nurturant help from the father. However, the second-year findings in which paternal restrictiveness at one point in time was associated with cognitive deficits of the child a year later, suggest that at least some of the direction of influence (i.e., the negative impact) goes from father to child. The year-long delay in emergence of a correlation between paternal Task Restrictiveness and child cognitive scores suggests a sleeper effect as Kagan and Moss (1962) referred to the phenomenon. That is, there is a delayed action effect possibly because paternal restrictiveness as the child makes mastery efforts discourages and hinders explorations which ultimately interferes with cognitive growth.

Social class differences in correlations between paternal behavior as the child completed tasks and child cognitive measures were found. Concurrent, as well as second-year cognitive measures, were negatively and significantly correlated with fathers' Task Nurturance in the middle class and lower class, but not in the working class. The presence of a significant negative correlation between Task Nurturance and first- and second-year cognitive measures in the middle class and lower class but not the working class may be explained by the differential value placed upon giving instructions in the three social classes. That is, the working-class father may accept orders or instructions as a natural component of his own work situation; Kohn (1969) suggested this is the case. Hence, when the working-class father interacts with his child in a task situation, his order-giving may be seen as appropriate and not carry a negative connotation. On the contrary, his involvement may be perceived by the child as a positive sign and it therefore benefits the child in his/her problem-solving behavior. In the middle class and lower class, such paternal involvement may communicate that the father is critical of the child's own ability, so that the child finds the father's help actually interferes with his/her independent mastery efforts. One could further speculate that working-class

fathers who do intervene confine their instruction-giving to task-focused situations which resembles the employment setting. At other times the working-class child may be left to explore independently. For middle-class and working-class fathers, by contrast, order-giving during the task situation may reflect a more pervasive pattern of paternal control so that the middle- or lower-class child of such a father has little opportunity to develop independent problem-solving skills.

In the middle class there was a significant negative correlation between Task Restrictiveness and second-year IQ, although there were no significant relationships with children's concurrent measures. Again, this suggests that the direction of influence in the negative association of restrictiveness and intellectual scores was from the middle-class father to the child. That is, by inhibiting the child's problem-solving behavior through the use of restrictive controls, the subsequent intellectual development of the middle-class child was hindered. There were no significant correlations between Task Restrictiveness and cognitive measures (concurrent or follow-up) for the working class or lower class, perhaps because fathers are expected to be disciplinarians in these two classes, and the negative affect associated with restrictiveness is therefore attenuated. Task Non-nurturance was not significantly correlated with children's first- or second-year scores for any social class group. Thus it is only when fathers interfere that their behavior becomes detrimental to the child, and this effect is found in the middle- and lower-class only.

Sex differences also emerged in the correlations of paternal behaviors as the child completed tasks with children's cognitive measures. Task Nurturance had significant negative correlations with all three concurrent cognitive measures for boys, but was not significantly related to any concurrent measures for girls. By the second year of testing, Task Nurturance was negatively correlated with IQ and Piaget Verbalizations for both boys and girls. Perhaps the father's help when the child is attempting to solve a puzzle has an immediate negative impact on boys, but not on girls; in the long-run however, the father's nurturant help is equally harmful to both boys and girls.

Thus the "sleeping effect" referred to above may operate for girls only. It is also possible that these sex differences are the result of differential "cumulative effects" of paternal task nurturance upon boys and girls. Fathers may engage in more task activities with their four-year-old sons than with their four-year-old daughters, because they perceive a teaching role to be more appropriate in father-son interactions. Thus the negative effect of paternal nurturance shows up immediately for boys. Since fathers spend less time with daughters in a problem-solving situation, perhaps seeing the mother as the more appropriate teacher for girls, it takes a year longer for the cumulative effects of paternal nurturance to have a negative impact on the girl's cognitive growth.

Paternal Task Restrictiveness, while not related to concurrent measures for either sex, was negatively correlated with boys' second-year Piaget Verbalizations. Again, the detrimental impact of fathers' inhibition of sons' exploration, and in turn of sons' cognitive growth, was evident; again, the direction of influence appeared to go from the father to the boy. The significant impact of paternal task restrictiveness for boys but not for girls may also be due to the cumulative effects of the father's behavior. While paternal restrictiveness was equally infrequent for both sexes in the observed situations of this study, other research (Blau, 1971; Radin, 1974) indicates that young boys in general elicit more parental restrictiveness. Perhaps a greater amount of paternal task restrictiveness for boys, while not significant enough to affect boys' first-year cognitive performance, has enough gradual cumulative effect to result in lowered intellectual abilities by the second year. For girls, even the cumulative effect of paternal task restrictiveness never reaches a level sufficient to have a negative impact upon cognitive measures.

Finally, some interesting differences emerged between lower-class boys and lower-class girls in the correlations between paternal task behavior and children's cognitive measures. Task Nurturance was negatively correlated with both concurrent (Piaget Verbalizations) and and follow-up cognitive scores (both Piaget measures) for girls in the lower class, but there were no significant relationships for lower-class boys. The fact that the impact of paternal nurturance is seen

immediately as well as later for the lower-class girl, while it only appears later for girls as a whole, may be because fathers in the lower class place greater emphasis on the girls' abilities. Since women in the lower class are more often major bread-winners in the family, lower-class fathers may spend more time trying to develop the task skills of their daughters and the negative effect of this interference is seen immediately. In addition, Task Non-nurturance was positively correlated with first- and second-year Piaget Verbalizations for lower-class girls, but not lower-class boys. These findings support the conclusions of Jordan, Radin, and Epstein (in press) using first-year scores for the same sample, that non-interference on the part of the father is best for the cognitive development of the lower-class girl. Task Nurturance and Non-nurturance were significantly related to lower-class girls' Piaget Verbalizations in both years of testing, but paternal measures were related to lower-class girls' Piaget MTP in the second year only. This suggests that early paternal interference may inhibit the lower-class girl's cognitive exploration, and this freedom to explore is critical for the attainment of concepts, e.g., conservation, between 4 and 5 years of age.

In summary, one finds that the relationship of observed paternal behavior with immediate and follow-up measures of children's intellectual abilities depends upon the situation in which the father-child interactions occur. Father behaviors while the father is distracted by the interview were related to concurrent cognitive measures, but were virtually unrelated to the child's motivation and cognitive functioning one year later. Father behaviors while the child completed tasks were significantly related to both concurrent and subsequent intellectual assessments of the child. The reasons for these differences are unclear at this point. Before the child enters school, interactions with the father in a variety of situations may be critical in the child's development of mastery motivation and his/her attainment of concepts. A general pattern of nurturance may foster the child's desire to explore the environment, provided the father does not "smother" the child with nurturance in problem-solving situations. Thus, the father's behavior observed in both contexts is relevant to the four-year-old's cognitive functioning. Once the child enters school,

however, and is presented with an increasing number of problem-solving situations, the father's influence on the child in a task context per se becomes the critical dimension. Further exploration is needed to fully understand the differential importance of the context of father-child interactions for the immediate and subsequent cognitive development of the child.

(3) Further examination of the data on Veroff's measure of Autonomous Achievement Motivation collected in the first year of testing - Analyses of variance revealed no significant effects of sex, social class, or their interaction for realistic Autonomous Achievement Motivation. Chi-square distributions of children's easy and hard task choices on the Autonomous Achievement measure indicated that lower-class children, particularly lower-class girls, make significantly more hard choices than other groups. This finding is in keeping with previous research by Veroff and Peele (1969). Middle-class boys and working-class girls, by contrast, make significantly fewer hard task choices than other groups. There were no group differences in easy choices on the Autonomous Achievement task.

Correlations have also been computed between Veroff autonomous measures, and paternal and child variables. Unusual sex differences have emerged. For girls, Autonomous Achievement Motivation was negatively associated with paternal nurturance during the interview, particularly the factor of Empathy, Psychological Manipulation and Cognitive Stimulation. It may be that the result of this type of nurturance is that the father psychologically and cognitively controls the experiences of his daughter, and hence she has few opportunities to develop a realistic sense of her own abilities. For boys, paternal behavior during the interview was unrelated to the son's Autonomous Achievement Motivation. However, both fathers' nurturance and restrictiveness during the task interactions showed significant positive correlations with Autonomous Achievement Motivation, suggesting perhaps that a combination of paternal rewards and limit-setting facilitates the development of boys' realistic self-evaluations. This is in keeping with Veroff's hypothesis (personal communication, November 27, 1974).

Veroff's prediction that high amount of both nurturance plus restrictiveness would result in higher motivation scores was further

examined using the chi-square statistic for the various boys' and girls' subsamples. Each subsample was divided into four groups (i.e., high-high, high-low, low-high, and low-low) based upon a nurturant and a restrictive paternal factor score. For boys, the two father factors used were Positive Response and Cognitive Stimulation, and Verbal Restrictiveness. For girls, the two paternal factors used were Empathy, Psychological Manipulation and Cognitive Stimulation, and Verbal Restrictiveness and Requesting. Autonomous Achievement Motivation (here defined as the last success plus the first failure) was the dependent variable (above and below the mean) in the chi-square distributions. None of the chi-squares were significant. However, the chi-square for lower-class boys approached significance ($\chi^2 = 7.10$, $df = 3$, $p < .07$) and was in the predicted direction, e.g., 100% of the lower-class boys whose fathers were high on both nurturance and restrictiveness were above the mean in Autonomous Achievement Motivation.

Surprisingly, Autonomous Achievement Motivation was negatively associated with first- and second-year Binet IQ for middle-class children, and with second-year Binet IQ for middle-class boys. Perhaps middle-class preschoolers who tend to be brighter than peers of lower social class status, are more accustomed to succeeding at task endeavors. If this were so, the failure, which they necessarily experience as part of the Veroff autonomous assessment procedure, could be particularly anxiety arousing or eliciting of fear of failure. This might cause them to lose their realistic self-confidence in their own abilities, and hence to choose easy rather than moderate tasks. Autonomous Achievement Motivation showed no significant correlations with Piaget Mean Total Performance or Verbalizations.

The Veroff measure was not significantly associated with Binet-derived motivation variables, i.e., Person- and Task-Oriented Motivation. Dr. Veroff (personal communication, November 27, 1974) suggested that conceptualizing POM as a "fear of failure" measure might clarify the relationship between these two motivational measures. He predicted that children with low fear of failure and high task-orientation (i.e., high on both POM and TOM) would exhibit high Autonomous Achievement Motivation. Conversely, children with high fear of failure, regardless

of their level of task-oriented motivation, would exhibit low Autonomous Achievement Motivation. Dr. Veroff further suggested that the "last success" scored separately, rather than being combined with "first failure" might be a better predictor of children's Autonomous Achievement Motivation. Consequently, chi-squares were computed for the total sample and all subsamples by dividing them into four groups (high-high, high-low, low-high, low-low) based upon their POM and TOM scores, and using "last success" (above and below the mean) as the dependent variable. None of the chi-squares computed were significant. Further investigation is needed to understand the complex relationship between the various measures of achievement motivation.

(4) Testing for curvilinearity in the relationships between boys' and girls' observed father behavior factors and children's first-year cognitive measures - Because significant linear correlations had been found between father factors and children's cognitive scores for boys only, it was decided to investigate the possibility that curvilinear relationships might exist between these father and child measures. Consequently, for boys as a whole and girls as a whole, eta was computed between observed father behavior factors (4 in the case of boys, 6 in the case of girls) and children's IQ, Piaget MTP and Piaget Verbalizations. As can be seen in Table 13, none of the eta's were significant for boys; three were significant for girls. In view of the fact that the Pearson coefficient of correlation was not significant for the three pairs of variables yielding a significant eta, it can be said that there was a significant non-linear relationship between the following factors: (1) Empathy, Psychological Manipulation and Cognitive Stimulation with girls' Piaget Verbalizations ($\eta = 1.93$, $df = 15,64$, $p < .05$); (2) Attention to the Child's Verbalizations with girls' IQ ($\eta = 2.22$, $df = 15,62$, $p < .05$); and (3) Attention to the Child's Verbalizations and girls' Piaget MTP ($\eta = 3.65$, $df = 16,63$, $p < .001$). Scatter plots were generated for these three significant relationships and curves were plotted. The resulting curves (which are attached as Figures 1, 2, and 3) had multi-modal distributions and indicated that the curvilinear relationships between father behaviors and girls' cognitive measures were complex and not readily interpretable. Consultation with statistical experts at the University of Michigan indicated that there was no

readily available computer program for handling the curvilinear relationships. This issue should be explored further, perhaps by analyzing each social class separately.

(5) Examining fathers' answers to the open-ended questions in the interview - Fathers' answers to the question "Does (child's name) take after anyone in the family?" were examined to shed light on the speculation that young boys model their fathers while young girls model their mothers. The percentage of fathers within each sex/social class subgroup who responded that the child took after the father or the mother were compared for the two sexes within each class, and the three classes within each sex. Two significant differences emerged: fathers reported that lower-class girls took after their mothers significantly more often than did lower-class boys ($z = 2.63, p < .01$); and middle-class girls were reported to take after their fathers significantly more often than lower-class girls ($z = 2.14, p < .05$). Thus previous speculation that daughters are using their mothers as their primary models receives support from the perception of lower-class fathers. The working-class and middle-class fathers do not perceive and/or report greater similarity between the child and the same-sexed parent. It is still possible that modelling of the same-sexed parent is occurring in these other two social classes. However, the popular emphasis on reducing sex-role stereotypes may lead the working-class father to say or believe that there are no differences in modelling, while the middle-class father goes even further in stating that his daughter takes after him. Further discussion of these data appears elsewhere (Klein, 1975).

(6) Informing the participating families and schools of the results obtained - Following the procedure used at the end of the first year, individual test scores of children from the second year were sent, upon parental permission, to the schools where the children would be attending the first grade. Again, information about the Piaget measures (Epstein & Radin, 1974) was included for use by school principals and teachers.

Copies of this final report will be sent to the principals of all participating schools. An abbreviated summary of results obtained since the first report will be sent to the families. Upon request, we will also arrange to discuss our results at a meeting with the staff and/or parents at each school.

Summary of Results - September, 1972 through February, 1975:

This study has demonstrated the effectiveness of a reliable, inexpensive method for observing fathers interacting with their preschool children under relatively natural conditions. Social class differences have emerged in the amount and quality of nurturant paternal behaviors. Striking sex differences were found in the factorial structures of fathers' behaviors, and in the relationships of these factors to the motivational and cognitive development of their sons and daughters. For boys, fathers' behavior factors were clearly nurturant or restrictive with the former enhancing intellectual growth and the latter inhibiting it. Achievement motivation was shown to mediate these positive and negative relationships between paternal behavior and boys' cognitive performance.

Publications and Manuscripts Resulting from the Project

- Epstein, A.S. Training procedures for interviewers and testers in the father-child interaction project. Unpublished manuscript, University of Michigan, 1974.
- Epstein, A.S. and Radin, N. Description of Piaget tasks and performance levels: First-year. Unpublished manuscript, University of Michigan, 1973.
- Epstein, A.S. and Radin, N. Description of Piaget tasks and performance levels: Second-year. Unpublished manuscript, University of Michigan, 1974.
- Epstein, A.S. and Radin, N. Motivational components related to father behavior and cognitive functioning in preschoolers. Child Development, in press.
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- Radin, N. and Epstein, A.S. Observed paternal behavior with preschool children: Overview of first-year findings. Unpublished manuscript, University of Michigan, 1974b.
- Radin, N. and Epstein, A.S. Observed paternal behavior and the intellectual functioning of preschool boys and girls. A paper presented at the meeting of the Society for Research in Child Development, Denver, April, 1975.

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TABLE 1

Varimax Factor Matrix: Father Behavior with Boys

Variable	Positive Response to Child & Cogni- tive Stimulation	Empathy & Psycho- logical Manipula- tion of Child	Prevention & Physi- cal Control of Child (Physical Restric- tiveness)	Verbal Re- strictiveness	h^2
Verbal Reinforcement	<u>.77</u>	-.09	-.04	-.14	.62
Consulting	-.03	<u>.35</u>	-.01	-.15	.74
Order with Explanation	<u>.60</u>	<u>.07</u>	.99	.25	.44
Preventive Warning	-.00	.02	<u>.76</u>	-.03	.58
Bribing	-.06	<u>.78</u>	-.04	.41	.78
Psychological Manipulation	.27	<u>.50</u>	.02	.31	.42
Preventive Manipulation	-.16	-.01	<u>.63</u>	-.07	.42
Correcting	<u>.56</u>	-.12	-.11	-.01	.34
Fully Meeting Explicit Needs	<u>.73</u>	-.10	.10	.22	.60
Partially Meeting Explicit Needs	<u>.50</u>	-.04	.33	.17	.39
Not Meeting Explicit Needs	-.02	-.22	.45	<u>.54</u>	.54
Initiates Conversation	<u>.54</u>	.08	-.18	<u>.02</u>	.33
Stops Talking	<u>.67</u>	.01	.10	-.24	.51
Continues Talking	-.43	-.01	.22	-.13	.25
Meeting Other Implicit Needs	-.06	<u>.83</u>	.00	.09	.78
Affection	<u>.47</u>	<u>.15</u>	-.04	.08	.26
Sharing	.02	.11	-.04	.30	.11
Requesting	.00	.06	-.12	.24	.07
Asks Information	<u>.47</u>	.05	-.21	-.09	.28
Aversive Order without Explana- tion	-.04	-.14	.02	<u>.56</u>	.34
Non-Aversive Order without Explanation	-.03	.15	.17	<u>.79</u>	.67
Threatening	.01	.24	-.04	<u>.84</u>	.47
Other Aversive Verbal	.03	-.01	-.05	<u>.52</u>	.28
Aversive Non-Verbal	-.06	-.02	<u>.85</u>	.02	.73
Physically Stops	.27	.04	<u>.43</u>	-.07	.31
(Factor loadings) ² by column	3.60	2.59	2.46	2.61	11.26
% Total Variance Explained	.14	.10	.10	.10	.45

TABLE 2

Varimax Factor Matrix: Father Behavior with Girls

Variable	Meeting & Ignoring Explicit Needs	Aversive & Non-Aversive Control	Verbal Restrictiveness & Re-requesting	Empathy, Psychological Manipulation & Cognitive Stimulation	Attention to Child's Verbalizations	Physical Restrictiveness	h^2
Verbal Reinforcement	.47	.16	-.11	.63	.24	.16	.74
Consulting	-.08	-.13	.22	.50	.03	-.15	.34
Order with Explanation	.06	.73	.14	-.13	.27	.04	.72
Preventive Warning	.17	-.02	.06	-.16	.43	.00	.29
Drubing	-.12	-.06	-.03	.03	-.05	.32	.13
Psychological Manipulation	.24	.48	-.04	.55	.00	.29	.67
Preventive Manipulation	-.13	.89	-.02	.01	-.08	-.19	.85
Correcting	.12	.02	.32	.16	.78	.08	.76
Fully Meeting Explicit Needs	.79	.02	.07	-.11	.28	.04	.72
Partially Meeting Explicit Needs	.56	.03	-.06	.16	.08	-.03	.35
Not Meeting Explicit Needs	.78	.03	.21	.02	-.17	-.05	.68
Initiates Conversation	.35	.08	.12	.67	.32	-.18	.73
Stops Talking	.06	.13	-.12	-.04	.75	-.16	.62
Continues Talking	.55	-.04	.09	.06	.31	.09	.42
Meeting Other Implicit Needs	-.04	-.05	.10	.75	-.08	.18	.61
Affection	-.07	-.12	-.11	.37	.46	-.05	.38
Sharing	.06	.05	-.10	.17	.61	.05	.42
Requesting	.46	-.05	.55	.32	-.11	-.14	.65
Asks Information	.13	.07	.43	.57	.04	-.22	.58
Aversive Order without Explanation	-.04	.09	.91	.04	.03	-.12	.85
Non-Aversive Order without Explanation	.10	.10	.78	.23	-.09	.03	.69
Threatening	.09	.88	.16	.08	-.05	.24	.88
Other Aversive Verbal	.09	.08	.71	-.04	.10	.36	.66
Aversive Non-Verbal	.46	.25	.03	.35	.15	.67	.85
Physically Stops	.10	.13	.08	-.23	.04	.79	.72
(Factor Loadings) ² by column	2.83	2.62	2.77	2.90	2.50	1.73	15.32
% Total Variance Explained	.11	.10	.11	.12	.10	.07	.61

TABLE 3

Two-way Analysis of Variance of First-Year Cognitive Measures

Binet IQ (N = 178)					
Source of Variation	SS	DF	MS	F	P
Sex	237.43	1	237.43	1.31	NS
SES	1785.60	2	892.80	4.94	< .01
Sex x SES	547.15	2	273.57	1.51	NS
Error	31081.70	172	180.71		
Totals	33651.88	177			

Piaget Mean Total Performance Score (N=180)					
Source of Variation	SS	DF	MS	F	P
Sex	339.85	1	339.85	0.02	NS
SES	36215.84	2	18107.92	1.28	NS
Sex x SES	15276.13	2	7638.06	0.54	NS
Error	3458306.23	174	14128.20		
Totals	2510138.05	179			

Piaget Verbalizations (N = 180)					
Source of Variation	SS	DF	MS	F	P
Sex	8.03	1	8.03	0.68	NS
SES	113.10	2	56.55	4.76	< .05
Sex x SES	14.90	2	7.45	0.63	NS
Error	2065.32	174	11.87		
Totals	2201.35	179			

TABLE 4

Two-way Analysis of Variance of First-Year Motivational Measures

Mean Motivation While Taking Binet (N = 178)					
Source of Variation	SS	DF	MS	F	P
Sex	57.81	1	57.81	2.54	NS
SES	113.60	2	56.80	2.49	NS
Sex x SES	4.91	2	2.46	0.11	NS
Error	3921.28	172	22.80		
Totals	4097.60	177			

Binet Person-Oriented Motivation (N = 178)					
Source of Variation	SS	DF	MS	F	P
Sex	47.58	1	47.58	3.41	NS
SES	64.48	2	32.24	2.31	NS
Sex x SES	39.07	2	19.54	1.40	NS
Error	2398.86	172	13.95		
Totals	2549.99	177			

Binet Task-Oriented Motivation (N = 178)					
Source of Variation	SS	DF	MS	F	P
Sex	23.34	1	23.34	2.50	NS
SES	71.61	2	35.80	3.83	.05
Sex x SES	13.92	2	6.96	0.74	NS
Error	1608.73	172	9.35		
Totals	1717.60	177			

Veroff Autonomous Achievement Motivation (N = 178)					
Source of Variation	SS	DF	MS	F	p
Sex	3.16	1	3.16	2.15	NS
SES	5.38	2	2.69	1.83	NS
Sex x SES	5.73	2	2.87	1.95	NS
Error	252.56	172	1.47		
Totals	266.83	177			

TABLE 5
Correlations of Boys' Father Factors
with First-Year Cognitive Measures (a)

Group	N	First-Year Cognitive Measure	Boys' Father Factors			
			Positive Response to Child & Cognitive Stimulation	Empathy & Psycho- logical manipulation	Preventive and Physical Control	Verbal Restrictiveness
All Boys	99	IQ	.25**	.01	-.07	-.03
	99	MTP	.08	-.09	-.07	-.03
	99	P. Verbs	.38***	-.07	-.07	-.14
Middle- Class Boys	37	IQ	.36*	-.08	-.41**	-.08
	37	MTP	.02	-.04	-.25	.08
	37	P. Verbs	.39*	-.18	-.21	-.22
Working- Class Boys	39	IQ	.12	.13	.08	.06
	39	MTP	.03	-.12	-.03	-.06
	39	P. Verbs	.39**	-.06	-.01	-.03
Lower- Class Boys	23	IQ	.14	.05	-.16	-.17
	23	MTP	.32	-.05	-.03	-.41*
	23	P. Verbs	.14	-.03	-.36	-.45*

*p < .05

**p < .01

***p < .001

(a) MTP in table refers to Piaget Mean Total Performance Score and P. Verbs. refers to Piaget Verbalization Score.

TABLE 6
Correlations of Girls' Father Factors
with First-Year Cognitive Measures^(a)

Group	N	First-Year Cognitive Measure	Girls' Father Factors					
			Meeting & Ignoring Explicit Needs	Aversive & Non-Aversive Control	Verbal Res- trictiveness & Requesting	Empathy, Psycho- logical Manipula- tion & Cognitive Stimulation	Attention to Child's Verbaliza- tions	Physical Restrict- iveness
All Girls	79	IQ	.20	.05	-.06	.02	.05	-.04
	81	MTP	-.12	-.04	-.03	.09	-.12	-.04
	81	P. Verbs	-.11	-.12	-.20	-.03	.05	-.03
Middle- Class Girls	28	IQ	.27	.18	.05	.06	.24	-.16
	28	MTP	-.10	-.03	.10	-.06	-.03	-.31
	28	P. Verbs	-.13	-.27	-.23	-.11	.07	-.33
Working- Class Girls	31	IQ	-.08	-.01	-.01	-.13	.15	-.01
	31	MTP	.02	.10	-.05	.26	.25	-.04
	31	P. Verbs	-.26	-.06	-.19	.13	.25	-.04
Lower- Class Girls	20	IQ	.21	.26	-.24	-.16	.10	.13
	20	MTP	-.50*	-.34	-.12	-.02	-.34	.09
	20	P. Verbs	-.20	-.06	-.26	-.26	.12	.20

*p < .05

(a) MTP in table refers to Piaget Mean Total Performance Score and P. Verbs refers to Piaget Verbalization Score.

TABLE 7
Significant Predictor Variables in
Boys' Stepwise Multiple Regressions (a)

Group	N	Dependent Variable	Significant Predictor Variable	Multiple R	R ²
All Boys	99	IQ	Positive Response & Cognitive Stimulation	.26**	.06
	99	P. Verbs	Positive Response & Cognitive Stimulation	.38***	.14
Middle-Class Boys	37	IQ	Preventive & Phys. Control (-)	.41**	.17
			Positive Response & Cog. Stimulation	.55**	.30
	37	MTP	Father's Occupation	.33*	.11
	37	P. Verbs	Positive Response & Cog. Stimulation	.39*	.15
			Empathy & Psychological Manipulation (-)	.50**	.25
Working-Class Boys	39	P. Verbs	Positive Response & Cog. Stimulation	.39**	.15
Lower-Class Boys	23	MTP	Verbal Restrictiveness (-)	.41*	.17
	23	P. Verbs	Verbal Restrictiveness (-)	.45*	.20

Note: Regressions where one or more nonsignificant suppressor variables entered the regression equation before any significant predictor variable was entered are omitted from this table. In addition, a negative sign (-) appearing after a variable indicates that the variable entered the regression with a negative weight.

*p < .05

**p < .01

***p < .001

(a) MTP in the table refers to Piaget Mean Total Performance Score and P. Verbs refers to Piaget Verbalization Score.

TABLE 8
Significant Predictor Variables in
Girls' Stepwise Multiple Regressions

Group	N	Dependent Variable	Significant Predictor Variable	Multiple R	R ²
All Girls	79	IQ	Father's Occupation ^(a) (-)	.41***	.17
	81	MTP ^(b)	Father's Occupation ^(a) (-)	.23*	.05
	81	P. Verbs ^(c)	Father's Occupation ^(a) (-)	.35***	.12
Lower-Class Girls	21	MTP ^(b)	Meeting & Ignoring Explicit Needs (-)	.50*	.25
			Aversive & Non-Aversive Control ^(d) (-)	.70**	.49

Note: Regressions where one or more non-significant suppressor variables entered the regression equation before any significant predictor variable was entered are omitted from this table. In addition, a negative sign (-) appearing after a variable indicates that the variable entered the regression with a negative weight.

(a) The higher the father's occupation, the lower the score.

(b) MTP refers to Piaget Mean Total Performance Score.

(c) P. Verbs refers to Piaget Verbalization Score.

(d) A nonsignificant suppressor variable Physical Restrictiveness entered the regression equation in between these two significant predictor variables.

*p < .05

**p < .01

***p < .001

TABLE 9
Percentage of Children Re-tested

Group	# Tested 1st Year	# Re-tested 2nd Year	% of Original Group Re-tested
Total	180	160	88.9
Boys	99	90	90.9
Girls	81	70	86.4
Middle Class	65	55	84.6
Working Class	71	66	93.0
Lower Class	44	39	88.6
MC Boys	37	32	86.5
MC Girls	28	23	82.1
WC Boys	39	37	94.9
WC Girls	32	29	90.6
LC Boys	23	21	91.3
LC Girls	21	18	85.7

Note: MC refers to middle class, WC to working class and LC to lower class.

TABLE 10
2-Way Analysis of Variance of
Second Year Cognitive Measures
Binet IQ (N=155)

Source of Variation	SS	DF	MS	F	p
Sex	15.53	1	15.53	0.11	NS
SES	735.73	2	367.86	2.70	NS
Sex x SES	425.08	2	212.54	1.56	NS
Error	<u>20287.41</u>	<u>149</u>	136.16		
Totals	21463.75	154			

Piaget Mean Total Performance (N=159)

Source of Variation	SS	DF	MS	F	p
Sex	7350.34	1	7350.54	0.41	NS
SES	46736.80	2	23368.40	1.32	NS
Sex x SES	21843.54	2	10921.77	0.62	NS
Error	<u>2714000.51</u>	<u>153</u>	17738.57		
Totals	2789931.19	158			

Piaget Verbalizations (N=159)

Source of Variation	SS	DF	MS	F	p
Sex	16.62	1	16.62	1.48	NS
SES	115.69	2	57.84	5.17	.01
Sex x SES	84.36	2	42.18	3.77	.05
Error	<u>1712.57</u>	<u>153</u>	11.19		
Totals	1929.24	158			

TABLE 11
2-Way Analysis of Variance of
Second Year Motivation Measures

Mean Motivation While Taking the Binet (N=155)

Source of Variation	SS	DF	MS	F	P
Sex	0.01	1	0.01	0.04	NS
SES	0.15	2	0.07	0.38	NS
Sex x SES	0.49	2	0.24	1.26	NS
Error	<u>28.96</u>	<u>149</u>	0.19		
Totals	29.61	154			

Person-Oriented Motivation (N=155)

Source of Variation	SS	DF	MS	F	P
Sex	2.26	1	2.26	0.18	NS
SES	9.33	2	4.66	0.37	NS
Sex x SES	25.54	2	12.77	1.00	NS
Error	<u>1902.74</u>	<u>149</u>	12.77		
Totals	1939.87	154			

Task-Oriented Motivation (N=155)

Source of Variation	SS	DF	MS	F	P
Sex	0.15	1	0.15	0.02	NS
SES	4.45	2	2.22	0.34	NS
Sex x SES	16.50	2	8.25	1.25	NS
Error	<u>980.45</u>	<u>149</u>	6.58		
Totals	1001.55	154			

TABLE 12

Significant Correlations between Father Behaviors as Child Completed Tasks
and
Children's First- and Second-Year Cognitive Measures

Father Variable	Child's Cognitive Measure	Concurrent Correlation		2nd Year Correlation	
Task Nurturance	IQ	Total	-.30***	Total	-.30***
		Boys	-.36***	Boys	-.29*
		Girls	-.17	Girls	-.35**
		MC	-.44***	MC	-.35*
		LC	-.35*	LC	-.41*
		MC Boys	-.52**	MC Boys	-.38
	MTP	Total	-.20*	Total	-.19*
		Boys	-.21*	Boys	-.17
		MC	-.39**	MC	-.27
		MC Boys	-.40*	MC Boys	-.22
		LC Girls	-.25	LC Girls	-.49*
	P. Verbs	Total	-.22**	Total	-.28***
		Boys	-.26*	Boys	-.31**
		Girls	-.19	Girls	-.31*
		MC	-.30*	MC	-.36*
		LC	-.43**	LC	-.39*
		LC Girls	-.49*	LC Girls	-.60**
Task Non-Nurturance	MTP Verbs.	LC Girls	.01	LC Girls	.56*
		LC Girls	.52*	LC Girls	.59*
Task Restrictiveness	IQ	Total	.05	Total	-.17*
		MC	-.25	MC	-.36*
	P. Verbs	Total	-.14	Total	-.20*
		Boys	-.20	Boys	-.30**

Note: When a significant correlation was obtained between a father variable and a cognitive measure for either a concurrent or 2nd year cognitive measure, both the concurrent and 2nd year correlations are listed. In the table MTP refers to Piaget Mean Total Performance Score, P. verbs refers to Piaget Verbalization Score, MC to middle class and LC to lower class.

* $p < .05$

** $p < .01$

*** $p < .001$

TABLE 14

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Curvilinear Correlations between Father Factors and Cognitive Measures^(a)

Father Factor	Cognitive Measure	r	eta(H) x on y	F Value (1)eta compared to zero (2)eta compared to correl.	DF	Signi- ficance
<u>All Boys (N=99)</u>						
Positive Response & Cog Stim.	IQ	.25**	.50	(1) 0.66	16,81	ns
				(2) 0.11	17,80	ns
	MTP	.08	.45	(1) 0.94	17,80	ns
				(2) 0.12	17,80	ns
	P. Verbs.	.38**	.51	(1) 0.44	12,85	ns
				(2) 0.79	17,80	ns
Empathy & Psych. Manipulation	IQ	.01	.26	(1) 0.64	16,81	ns
				(2) 0.92	7,90	ns
	MTP	-.09	.23	(1) 0.99	17,80	ns
				(2) 0.63	7,90	ns
	P. Verbs.	-.07	.31	(1) 0.50	12,85	ns
				(2) 1.34	7,90	ns
Preventive & Physical Control	IQ	-.07	.19	(1) 0.76	16,81	ns
				(2) 0.99	3,94	ns
	MTP	-.07	.21	(1) 0.47	17,80	ns
				(2) 1.30	3,94	ns
	P. Verbs.	-.07	.20	(1) 0.68	12,85	ns
				(2) 1.09	3,94	ns
Verbal Restric- tiveness	IQ	-.03	.41	(1) 1.26	16,81	ns
				(2) 1.94	9,88	.10
	MTP	-.03	.37	(1) 1.45	17,80	ns
				(2) 1.50	9,88	ns
	P. Verbs.	-.14	.38	(1) 0.86	12,85	ns
				(2) 1.45	9,88	ns
<u>All Girls(N=79,81,81)</u>						
Meeting & Ignoring Explicit Needs	IQ	.20	.38	(1) 1.51	15,62	ns
				(2) 0.78	11,66	ns
	MTP	-.12	.33	(1) 1.17	16,63	ns
				(2) 0.62	11,68	ns
	P. Verbs.	-.11	.39	(1) 1.20	15,64	ns
				(2) 1.00	11,68	ns
Aversive & Non- Aversive Control	IQ	.05	.10	(1) 0.44	15,62	ns
				(2) 0.18	3,74	ns
	MTP	-.04	.18	(1) 0.48	16,63	ns
				(2) 0.79	3,76	ns
	P. Verbs.	-.12	.23	(1) 1.27	15,64	ns
				(2) 1.10	3,76	ns

TABLE 13 (Cont'd.)

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Father Factor	Cognitive Measure	r	eta(H) x on y	F Value (1) eta compared to zero (2) eta compared to correl.	DF	Signi- ficance
Verbal Restrictive- ness and Requesting	IQ	-.06	.21	(1) 0.42	15,62	ns
				(2) 0.34	8,69	ns
	MTP	-.03	.35	(1) 0.65	16,63	ns
				(2) 1.21	8,71	ns
	P. Verbs.	-.20	.30	(1) 1.25	15,64	ns
				(2) 0.50	8,71	ns
Empathy, Psych. Manipulation, & Cog. Stimulation	IQ	.02	.35	(1) 0.41	15,62	ns
				(2) 0.94	10,67	ns
	MTP	.09	.28	(1) 0.96	16,63	ns
				(2) 0.55	10,69	ns
	P. Verbs.	-.03	.40	(1) 1.93	15,64	.05
				(2) 1.31	10,69	ns
Attention to Child's Verbs.	IQ	.05	.35	(1) 2.22	15,62	.05
				(2) 1.22	8,69	ns
	MTP	-.12	.28	(1) 3.65	16,63	.001
				(2) 0.63	8,71	ns
	P. Verbs.	.05	.29	(1) 0.43	15,64	ns
				(2) 0.82	8,71	ns
Physical Restrict- iveness	IQ	-.04	.18	(1) 0.86	15,62	ns
				(2) 0.75	3,74	ns
	MTP	-.04	.20	(1) 1.34	16,63	ns
				(2) 1.01	3,76	ns
	P. Verbs.	-.03	.18	(1) 0.74	15,64	ns

(a) MTP represents Piaget Mean Total Performance, P. Verbs represents Piaget Verbalization Score, IQ refers to Binet IQ.

**p < .01

FIGURE 1

43 Scatter Plot: Girls' Father Factor IV (Empathy, Psychological Manipulation & Cognitive Stimulation) and Piaget Verbs.

$r = -.03$ ns

$H = .40^*$

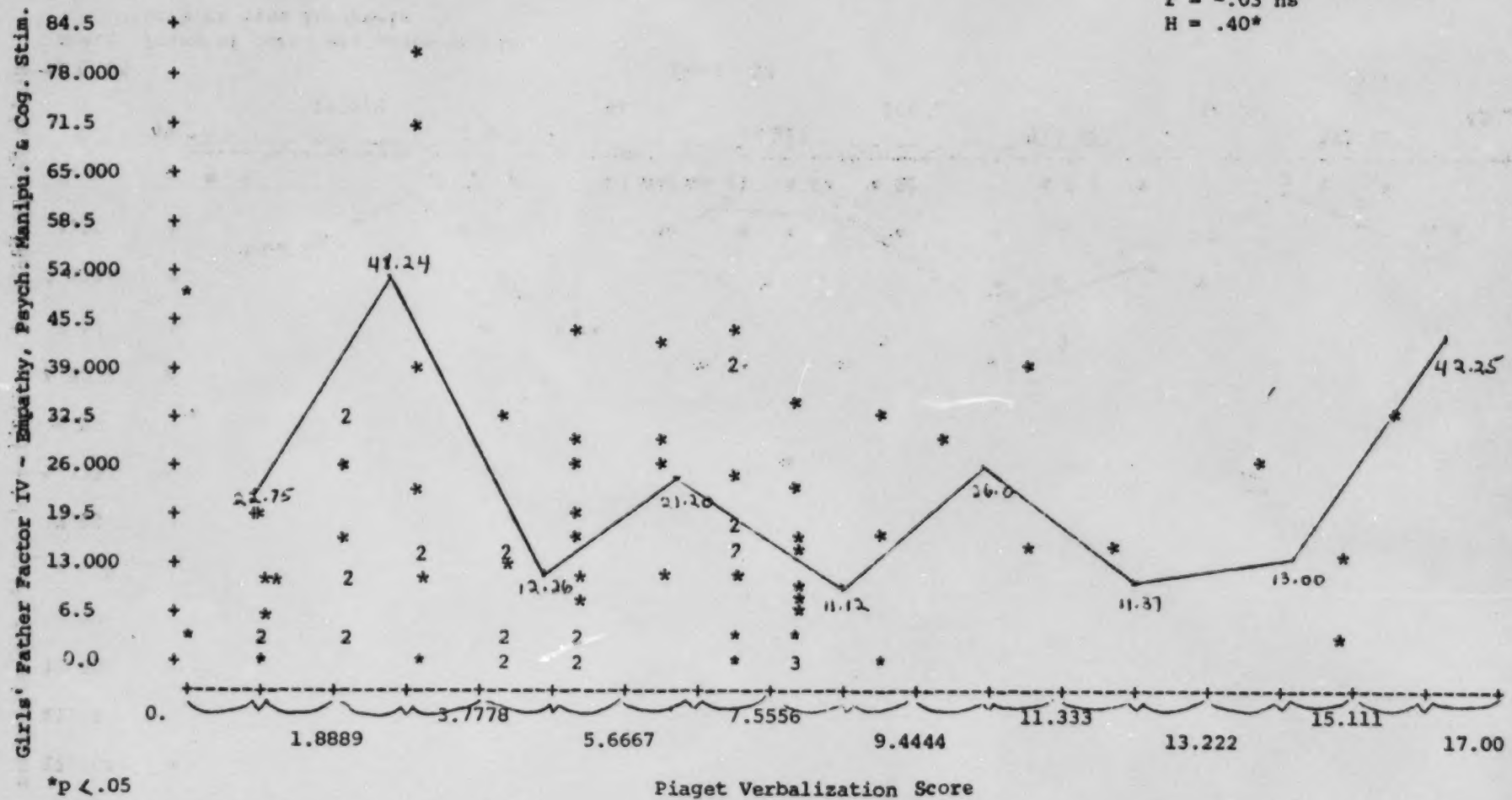


FIGURE 2

Scatter Plot: Girls' Father Factor V (Attention to Child's Verbalizations) and Binet IQ

$r = .05$ ns

$H = .35^*$

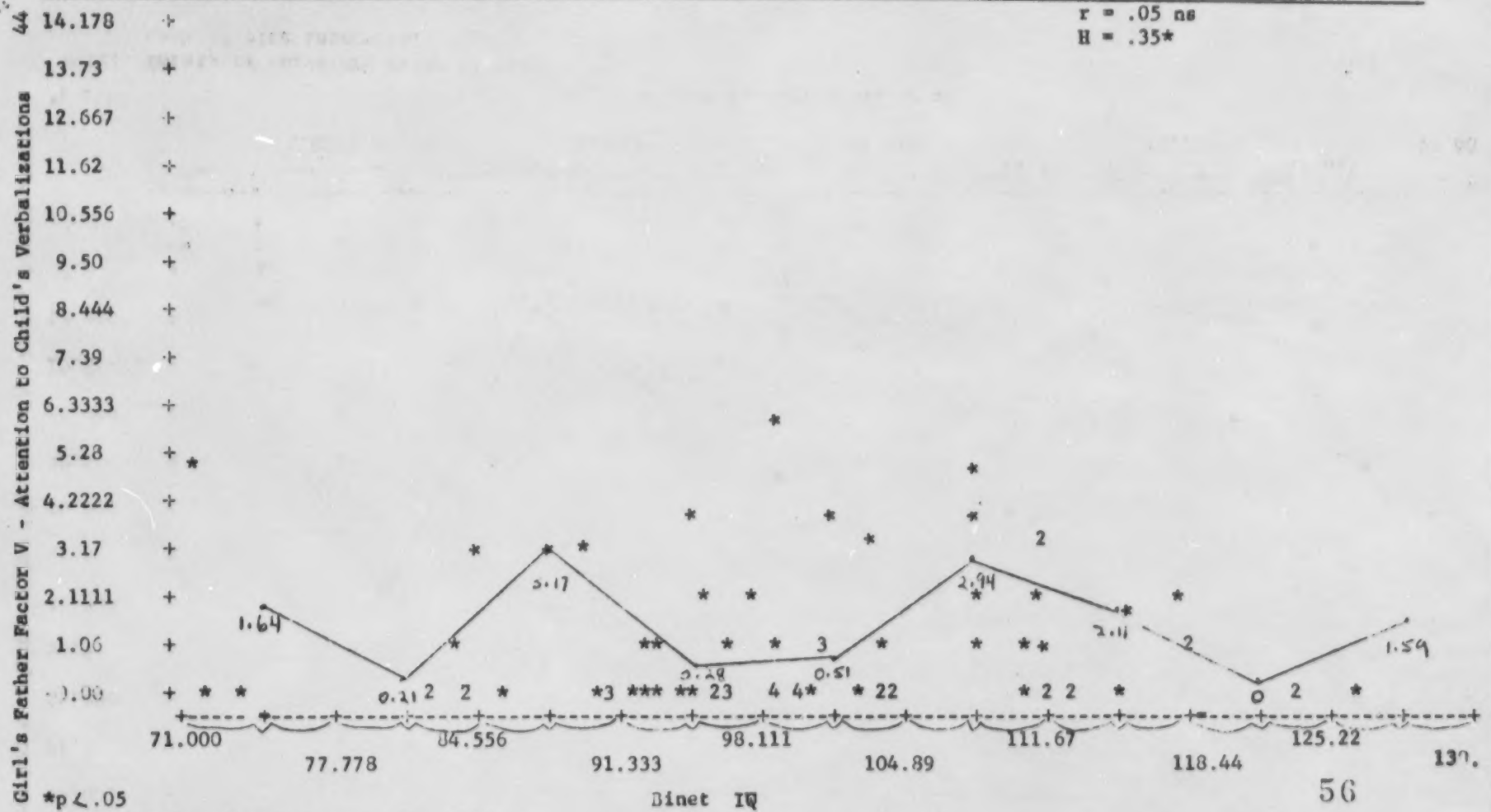
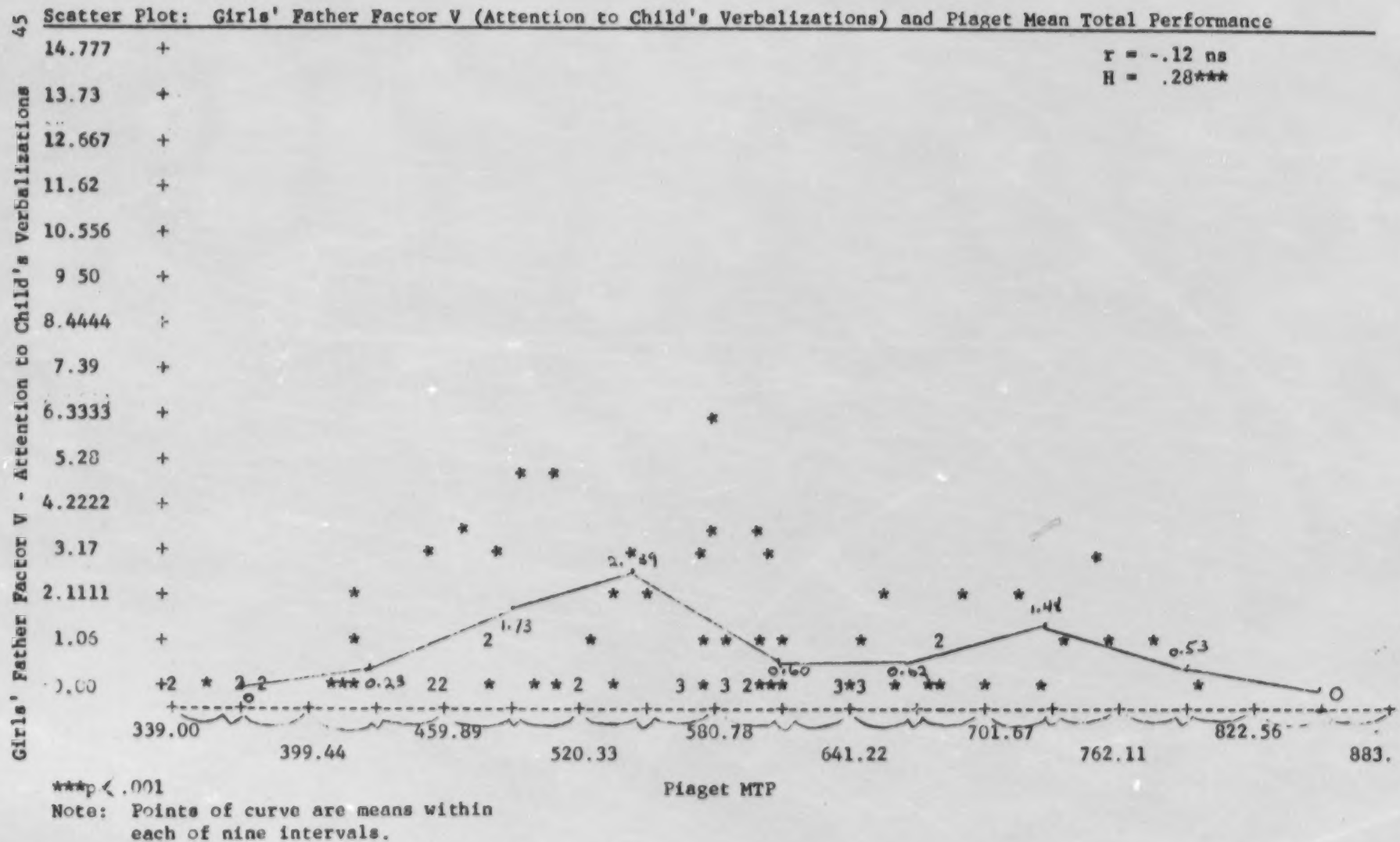


FIGURE 3



APPENDIX A

9-73

FATHER-CHILD INTERACTION PROJECT CODING MANUAL

OVERVIEW

Card 1: Demographic Data	p. 1
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Appendix A: Coding Manual for Categories of Father-Child Interaction

Appendix B: Factors Affecting Test Performance - Stanford Binet Test

Appendix C: Description of Games Interactions

Appendix D: Scoring Manual for DeVries (Piaget) Tasks

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Father-Child Interaction Study Coding Manual

page 1

Card 1: Demographic Information

9,99,999 = no information

Column

1	Project #	3
2-3-4	Subject #	001 - 998
5-6	Card #	01
7-8	Computed Score Hollingshead-Redlich Scale (SES)	11 - 77
9	Social Class Hollingshead-Redlich Scale	11-17 = class 1 18-27 = class 2 28-43 = class 3 44-60 = class 4 61-77 = class 5
10	City	1 - Flint 2 - Milford 3 - Monroe 4 - Plymouth 5 - Ypsilanti 6 - Ann Arbor 7 - Pontiac
11-12	School	01 - Apollo 02 - Cheney 03 - Cody 04 - Custer 05 - Duck Lake 06 - Gallimore 07 - Lincoln 08 - Miller 09 - Starkweather 10 - Brooks-Gibson 11 - Ann Arbor 12 - Pontiac
13-14	Father's Education	Highest grade completed

Father-Child Interaction Study Coding Manual
Card 1 (continued)

page 2

Column

15	Father's Education Scale Hollingshead-Redlich	1 - Graduate professional training; Graduate degree 2 - College or university graduate 3 - Partial college training 4 - High school graduation 5 - Partial High school 6 - Completion of 7th, 8th, or 9th grade 7 - Less than 7 years of school 9 - No information
16	Father's Occupation Scale Hollingshead-Redlich	1 - Executives and proprietors of large concerns; Major professionals 2 - Managers and proprietors of medium-size businesses; Lesser professionals 3 - Administrative personnel of large concerns; Owners of small independent businesses; Semi-professionals 4 - Owners of little businesses; Clerical workers; Sales workers; Technicians 5 - Skilled workers 6 - Semi-skilled workers 7 - Unskilled workers 9 - No information
17-18	Mother's Education	Highest Grade completed
19	Mother's Education Scale Hollingshead-Redlich	1 - Graduate professional training; Graduate degree 2 - College or university graduate 3 - Partial college training 4 - High school graduation 5 - Partial high school 6 - Completion of 7th, 8th, or 9th grade 7 - Less than 7 years of school 9 - No information
20	Mother's Occupation Scale Hollingshead-Redlich	1 - Executives and proprietors of large concerns; Major professionals 2 - Managers and proprietors of medium-sized businesses; Lesser professionals 3 - Administrative personnel of large concerns; Owners of small independent businesses; Semi-professionals 4 - Owners of little businesses; Clerical workers; Sales workers; Technicians 5 - Skilled workers 6 - Semi-skilled workers 7 - Unskilled workers 8 - Doesn't work 9 - No information
21-22	Age of Father	

Father-Child Interaction Study Coding Manual
Card 1 (continued)

page 3

Column

23	Total number of Siblings	0-7 = actual number 8 = 8 or more 9 = no information
24	Number of younger Siblings	0-7 = actual number 9 = no information
25	Number of older Siblings	0-7 = actual number 8 = 8 or more 9 = no information
26	Number of same sex younger siblings	0-8 = actual number 9 = no information
27	Number of opposite sex younger siblings	0-8 = actual number 9 = no information
28	Number of same sex older siblings	0-7 = actual number 8 = 8 or more 9 = no information
29	Number of opposite sex older siblings	0-7 = actual number 8 = 8 or more 9 = no information
30-31	Child's age in months at time of father interview	
32-33	Child's age in months as of Jan. 1, 1973	
34	Sex of Child 1 = Male 2 = Female	
35-80	Blank	

Father-Child Interaction Study Coding Manual

page 4

Card 2: Father Behaviors

(See Appendix A for

definition of interactions)

9, 99, 999 = no information

0 = no interactions

Column

1	Project #	3		
2-3-4	Subject #			
5-6	Card #	02		
7-8	Verbal reinforcement		<u>New Category</u> (1)	<u>Old Categor</u> (1)
9-10	Physical reinforcement		(2)	(2)
11-12	Consulting		(3)	(4)
13-14	Ordering with explanation		(4)	(5)
15-16	Preventive warning and reminding		(11)	(11)
17-18	Bribing		(12)	(12)
19-20	Other psychological manipulation		(13)	(14)
21-22	Preventive manipulation of environment		(24)	(22)
23-24	Correcting (in neutral form)		(26)	(24)
25-26	Fully meeting explicit needs		(14)	(15)
27-28	Partially meeting explicit needs		(15)	(16)
29-30	Not meeting explicit needs		(16)	(17)
31-32*	Initiates & encourages child in conversation		(17)	(18a)
33-34*	Stops talking to listen to child's comment		(18)	(18b)
35-36	Continues talking without stopping to listen to child's comment		(19)	(18c)
37-38*	Other responses to implicit needs of child		(20)	(18d)
39-40	Communicating affection		(21)	(19)
41-42	Sharing activities		(22)	(20)
43-44	Requesting		(23)	(21)
45-46	Asking information		(25)	(23)
47-48	Aversive ordering without explanation		(6)	(6a)

* All related to meeting implicit needs of child, as coded in pilot study, where all 3 added together to compute score for meeting implicit needs.

Father-Child Interaction Study Coding Manual
Card 2 (continued)

page 5

<u>Column</u>		<u>New Category</u>	<u>Old Category</u>
49-50	Nonaversive ordering without explanation	(5)	(6b)
51-52	Threatening	(7)	(7a)
53-54	Other aversive verbal stimuli	(8)	(7b,c)
55-56	Aversive non-verbal stimuli	(9)	(8)
57-58	Physically stopping undesirable behavior in a non-aversive fashion	(10)	(10)
59-61	Total Nurturance (7-28; 31-34; 37-46)		
62-64	Total Non-nurturance (29-30; 35-36)		
65-67	Total restrictiveness (47-58)		
68-70	Total number interactions (total of 7-58 <u>or</u> 59-67)		
71-72-73	Child Initiates (25-30; 33-36)		
74-80	Blank		

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Card 3: CHES Scores

Column

1	Project #	3
2-3-4	Subject #	
5-6	Card #	03
<u>7-31</u>	CHES Scores	7 = Highly stimulating Cognitive Home Environment 6 5 4 3 2 1 = Unstimulating Cognitive Home Environment
7	Item 1 - Grade expected in school	
8	Item 2 - What grade would satisfy you?	
9	Item 3 - Opportunities to visit other towns	
10	Item 4 - What newspapers/magazines in the home? Who uses them?	
11	Item 5 - Recent birthday and Christmas gifts purchased by father. Educational in intent?	
12	Item 6 - # of items not including clothes, money or food	
13	Item 7 - Library card and usage	
14	Item 8 - Number of craft items available to child in home (i.e. paste, paper, etc.)	
15	Item 9 - Do you have a dictionary in the home? Who uses it?	
16	Item 10- Do you have an encyclopedia? Who uses it? How often?	
17	Item 11- Assistance in facilitating learning in a variety of situations.	
18	Item 12- Does family eat together? Who does most of talking?	
19	Item 13 - How much time is family together; What are some things you do together? (during week)	
20	Item 14 -Husband with child both weekends and weekdays? Any effort to facilitate learning through activities?	
21	Item 15 - Opportunities to visit with adults outside of the home?	
22	Item 16 - Does father read to child? How often?	

Father-Child Interaction Study Coding Manual
Card 3 (continued)

page 7

Column

23	Item 17 - Types of television programs recommended by father (if any)
24	Item 18 - Any effort to teach child new words?
25	Item 19 - Are you concerned about the way child talks? Attempt to correct error.
26	Item 20 - How much schooling would you like _____ to receive?
27	Item 21 - How much schooling do you expect _____ to receive?
28	Item 22 - What is the least amount of education you think _____ must have?
29	Item 23 - What kind of work do you think the child will do?
30	Item 24 - What are some things child does that you approve of? (intellectual accomplishments mentioned)
31	Item 25 - Desire for child to go to college; knowledge of cost and/or savings plan.
32-34	Total CHES Score (sum of items 1-25)
35-36	CHES factor 1 - Educational materials in the Home Average of items 4,7,8,9,10 to 1 correct decimal
37-38	CHES factor 2 - Grades expected Average of items 1,2 to 1 correct decimal
39-40	CHES factor 3 - Future expectations of the child Average of items 20, 21, 22, 23 to 1 correct decimal
41-42	CHES factor 4 - Educationally-oriented activities Average of items 13,15,24,25 to 1 correct decimal
43-44	CHES factor 5 - Direct Teaching activities Average of items 11,14,16,18 to 1 correct decimal
45-80	Blank

Father-Child Interaction Study Coding Manual

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Card 4: Torgoff Scores

9,99,999 = no information

Column

1	Project #	3
2-3-4	Subject #	
5-6	Card #	04
<u>7-36</u>	Coding of achievement related items in years to 1 decimal point, e.g. "Between 3 & 4" coded as 3.5.	
7-8-9	Item 1 - Begin to train child to wash self, no adult assistance.	
10-11-12	Item 2 - Begin to teach child not to fight but first to reason.	
13-14-15	Item 6 - Begin to teach child that crying is not way to get what he wants.	
16-17-18	Item 11 - Begin to teach child not to use fingers when eating .	
19-20-21	Item 15 - Begin to make child aware of cost of objects child damages	
22-23-24	Item 19 - Begin to train child not to get "make believe" and "pretend" mixed up with real life.	
25-26-27	Item 21 - Begin to teach child not to "blow up" when child is "boiling" inside.	
28-29-30	Item 27 - Begin to teach child to share his toys	
31-32-33	Item 32 - Begin to teach child not to cry every time child gets hurt	
34-35-36	Item 40 - Begin to teach child that it is wrong to cheat.	
<u>37-60</u>	Coding of independence related items in years to 1 decimal point, e.g. "Between 5 & 6" coded as 5.5.	
37-38-39	Item 3 - Begin to allow child to take full responsibility as a babysitter, caring for a younger brother or sister in afternoon	
40-41-42	Item 9 - Begin to allow child to ride a two-wheel bicycle in streets where there is only light traffic.	
43-44-45	Item 10 - Begin to allow child to spend money child earns in any way child wants.	
46-47-48	Item 20 - Begin to allow child to remain home alone during day.	
49-50-51	Item 25 - Begin to allow child to cross busy streets where no traffic light or officer.	
52-53-54	Item 28 - Begin to allow child to have friends of own choosing even if parents do not approve of choice.	

Father-Child Interaction Study Coding Manual
Card 4 (continued)

page 9

Column

55-56-57	Item 36 - Begin to allow child to light a burner on stove without adult supervision.
58-59-60	Item 43 - Begin to allow child to go swimming with a friend his own
61-62-63	Average age of achievement scores to 1 correct decimal place
64-65-66	Average of independence scores to 1 correct decimal place
67-68	Proportion of independence/achievement (I/A) score to 1 correct decimal place
69-80	Blank

*If more than 2 items missing on either the Achievement scale or the Independence scale, do not compute columns 61-68.

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Card 5: Binet and Veroff Scores - 1st year

9,99,999 = no information

Column

1	Project #	3
2-3-4	Subject #	
5-6	Card #	05
<u>7-22</u>	Factors affecting pre-test performance on first year Stanford-Binet (taken from face sheet of Binet test booklet) (See Appendix B attached for detailed description of criteria for ra	
	4 = optimal	
	3 = good	
	2 = average	
	1 = detrimental	
7	Absorbed by task	
8	Reaction during test performance (a) normal activity level	
9	(b) initiates activity	
10	(c) quick to respond	
11	Emotional dependence (a) socially confident	
12	(b) realistically self-confident	
13	(c) comfortable in adult company	
14	(d) assured	
15	Problem solving behavior (a) persistent	
16	(b) reacts to failure realistically	
17	(c) eager to continue	
18	(d) challenged by hard tasks	
19	Independence of examiner support (a) needs minimum of commendation	
20-21	Motivation while taking Binet (mean of above 13 ratings to 1 correct decimal place.	
22	Was it hard to establish a positive relationship with this person?	
	1 = No	
	2 = Yes	
23-24-25	Stanford Binet IQ score - 1st year - Old Norms	
26-27-28	Stanford Binet IQ score - 1st year - New Norms	

Father-Child Interaction Study Coding Manual
Card 5 (continued)

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Column

- 29 Veroff Social Comparison Test - First Year
- 1 = Easy
- 2 = Medium
- 3 = Hard
- 30-48 Veroff Autonomous Achievement Tasks - First Year
- 30 Veroff Picture Memory Performance Score (highest level performed correctly)
- 1 - 6
- 31 Veroff Picture Memory choice - "Which one would you like to do?"
- S = 1 (Easy)
- S+ = 2 (last success)
- F = 3 (first failure)
- F+ = 4 (second failure)
- 32 Veroff Picture Memory: Was choice performed correctly?
- 1 = No
- 2 = Yes
- 33 Veroff Magnaform Performance Score (highest level performed correct
- 1 - 9
- 34 Veroff Magnaform Choice, "Which one would you like to do?"
- S = 1 (easy)
- S+ = 2 (last success)
- F = 3 (first failure)
- F+ = 4 (second failure)
- 35 Veroff Magnaform: Was choice performed correctly?
- 1 = No
- 2 = Yes
- 36 Veroff Bead Task Performance Score (Highest level performed correct
- 1 - 6
- 37 Veroff Bead Task Choice, "Which one would you like to do?"
- S = 1 (Easy)
- S+ = 2 (last success)
- F = 3 (first failure)
- F+ = 4 (second failure)
- 38 Veroff Bead Task: Was choice performed correctly?
- 1 = No
- 2 = Yes

Father-Child Interaction Study Coding Manual
Card 5 (continued)

page 12

Column

- 39 Veroff Drawing Task performance score (highest level performed correctly)
 1 - 6
- 40 Veroff Drawing Task choice, "Which one would you like to do?"
 S = 1 (Easy)
 S+ = 2 (last success)
 F = 3 (first failure)
 F+ = 4 (second failure)
- 41 Veroff Drawing Task: Was choice performed correctly?
 1 = No
 2 = Yes
- 42 Beanbag Throw Task performance score (highest level performed correctly)
 1 - 8
- 43 Beanbag Throw Choice, "Which one would you like to do?"
 S = 1 (Easy)
 S+ = 2 (last success)
 F = 3 (first failure)
 F+ = 4 (second failure)
- 44 Beanbag Throw Task: Was choice performed correctly?
 1 = No
 2 = Yes
- 45 Total number of realistic choices (S+ or F) or scores of 2 and 3
 in 5 autonomous achievement subtests
 0 - 5
- 46 Total number of easy choices (S) or score of 1
 0 - 5
- 47 Total number of hard choices (F+) or score of 4
 0 - 5
- 48-80 Blank

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Card 6: Open Ended Questions - Father Interview Questionnaire
 9,99,999 = no information

Column

- | | | |
|-------|--|----|
| 1 | Project # | 3 |
| 2-3-4 | Subject # | |
| 5-6 | Card # | 06 |
| 7-17 | <u>How do you see your role as a father? (II.1)*</u> | |
| 7 | A. Love, Affection | |
| | 1 = mentioned | |
| | 2 = not mentioned | |
| 8 | B. Take care of health, welfare, material needs; give them things | |
| | 1 = mentioned | |
| | 2 = not mentioned | |
| 9 | C. Set an example; role model | |
| | 1 = mentioned | |
| | 2 = not mentioned | |
| 10 | D. Guidance; show the right way; instill a value system or sense of responsibility; teach them right from wrong; church & religion | |
| | 1 = mentioned | |
| | 2 = not mentioned | |
| 11 | E. Discipline and strictness | |
| | 1 = mentioned | |
| | 2 = not mentioned | |
| 12 | F. Egalitarianism; not be lord and master; emphasis on mutuality in discipline and decisions; be equals | |
| | 1 = mentioned | |
| | 2 = not mentioned | |
| 13 | G. Communication; talk over problems; have them confide in me; learn from them | |
| | 1 = mentioned | |
| | 2 = not mentioned | |
| 14 | H. Spend time with them; take an interest in what they do; share activities; not get so wrapped up in my job that I overlook them | |
| | 1 = mentioned | |
| | 2 = not mentioned | |

* Numbers following categories refer to # of question on interview

Father-Child Interaction Study Coding Manual
Card 6 (continued)

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Column

- 15 I. Education; teach them things, give them a variety of experience including the "bad"; show them what life is like
1 = mentioned
2 = not mentioned
- 16 J. Teach them interpersonal behavior; how to get along with others; respect others; respect for family members; tolerance; no bigot
1 = mentioned
2 = not mentioned
- 17 K. Get (earn) their respect)
1 = mentioned
2 = not mentioned
- 18-29 How has child-rearing changed, e.g., self vs. own father?(II.2)
- 18 A. Love, affection
1 = less-parents show less affection to their kids nowadays
2 = same-my dad was affectionate with me and I'm the same way
3 = more-I show my kids more love because my father was gruff with me.
4 = not mentioned
- 19 B. Positive attitude toward material needs, etc.
1 = less
2 = same
3 = more - I like to give my kids the luxuries I never had
4 = not mentioned
- 20 C. Negative attitude toward material needs, etc.
1 = less
2 = same
3 = more - kids nowadays get too much; we had to work for what we got
4 = not mentioned
- 21 D. Set an example; role model
1 = less
2 = same
3 = more
4 = not mentioned
- 22 E. Guidance; show the right way, etc.
1 = less
2 = same
3 = more
4 = not mentioned

Father-Child Interaction Study Coding Manual
Card 6 (continued)

page 15

Column

- 23 F. Discipline and strictness
- 1 = less - parents let their kids run wild nowadays; not enough discipline
 - 2 = same - I lay down the law like my father did and it's good for the kids
 - 3 = more
 - 4 = not mentioned
- 24 G. Egalitarianism, etc.
- 1 = less
 - 2 = same
 - 3 = more - my dad was too tough on discipline so I'm more permissive; I'm less demanding and restrictive than my father was and more of an equal with my kids.
 - 4 = not mentioned
- 25 H. Communication, etc.
- 1 = less
 - 2 = same
 - 3 = more
 - 4 = not mentioned
- 26 I. Spend time with them, etc.
- 1 = less - parents don't care what their kids do; fathers are so busy at work or with their own interests that they ignore kids; I spend less time with my kids than my father spend with me.
 - 2 = same
 - 3 = more - I have more time to spend with my children than my father did.
 - 4 = not mentioned
- 27 J. Education; teach them things, etc.
- 1 = less
 - 2 = same
 - 3 = more - I devote more time to my kid's schooling; give them a greater variety of experiences
 - 4 = not mentioned
- 28 K. Teaching interpersonal behavior, etc.
- 1 = less
 - 2 = same
 - 3 = more
 - 4 = not mentioned

Father-Child Interaction Study Coding Manual
Card 6 (continued)

page 16

Column

- 29 L. Get (earn) their respect
- 1 = less - I wish my kids respected me as much as I respected my father
 - 2 = same - I respected my father and I want my kids to respect me the same way
 - 3 = more - there's no real generation gap because kids talk to and respect their parents more
 - 4 = not mentioned
- 30-33 What do you think of children's TV programs? (IV.1)
What kinds of TV programs do you want to see more of? less of? (IV.2)
- 30 A. General Impression
- 1 = good - I think TV programs for kids are good; they like the cartoons are fun
 - 2 = bad - programs don't challenge kids; not enough children's programs; cartoons are silly
 - 3 = not mentioned or no opinion-I never watch because I'm at work
- 31 B. Educational Programs
- 1 = good - specific reference to Sesame St., Electric Co., nature programs, documentaries, etc.; kids seem to learn a lot from them; want more of these
 - 2 = bad - don't think educational programs are useful; they push kids too much
 - 3 = not mentioned
- 32 C. Family programs
- 1 = good - specific reference to The Waltons, Lassie, etc.; like human interest shows for kids; variety shows we can all watch together; want more of these
 - 2 = bad
 - 3 = not mentioned
- 33 D. Violence and Sex
- 1 = good - it's OK for kids to learn about this stuff; it's OK long as we explain it to them
 - 2 = bad - too much violence; want less police and crime shows; don't like monster shows; cartoons are too violent
 - 3 = not mentioned

Father-Child Interaction Study Coding Manual
Card 6 (continued)

page 17

Column

- 34-37 How much TV do you think - - - - - should watch? (IV.2)
- 34 A. Number hours child should watch per day
 1 = less than 1 hour per day
 2 = between 1 and 2 hours per day (i.e., more than 1 but less than 2)
 3 = 2 hours per day
 4 = between 2 and 3 hours per day
 5 = 3 hours per day
 6 = between 3 and 4 hours per day
 7 = 4 or more hours per day
 8 = not mentioned; no specific number of hours given
- 35 B. Amount watched by child
 1 = child not all that interested anyway; gets bored
 2 = child watches too little
 3 = child watches right amount; I have no complaints
 4 = child watches too much
 5 = not mentioned
- 36 C. Setting Limits
 1 = father sets no limits
 2 = father specifically says he lets child set his/her own limit
 3 = father says definite limits; says child should watch only specific number of hours
 4 = not mentioned
- 37 D. Alternative Activities
 1 = mentioned - specifically talks about importance of develop other, more creative interests; likes the kids play outside more instead
 2 = not mentioned
- 38-44 Describe the last time you taught -----how to read, write, count etc. (V.)
- 38 A. Nature of Setting
 1 = Formal - father has specific time each day or week when this is done; special materials are used for teaching, workbooks, flash cards
 2 = Informal - done whenever it comes up; while riding in the car or sitting at the table; if older child brings something home from school and _____ happens to be there and is interested; no specific formal setting mentioned by father
 3 = not relevant (i.e., no teaching)

Father-Child Interaction Study Coding Manual
Card 6 (continued)

page 18

Column

39

B. Persons Present

- 1 = Father and child generally alone at this time; no others mentioned in description
- 2 = Mother present in addition to father
- 3 = siblings present in addition to father
- 4 = mother and siblings present in addition to father
- 5 = other people (e.g., relatives, friends) present in addition to father
- 6 = not relevant (i.e., no teaching)

40

C. Father has taught child to write (see CHES question #11)

- 1 = yes
- 2 = no

41

D. Father has taught child to read (see CHES question #11)

- 1 = yes
- 2 = no

42

E. Father has taught child to count (see CHES question #11)

- 1 = yes
- 2 = no

43

F. Father has taught child ABC's (see CHES question #11)

- 1 = yes
- 2 = no

44

G. Father has taught child other things (e.g., left vs. right) (see CHES question #11)

- 1 = yes
- 2 = no

45

Is Child curious, investigating, etc? (VI.1)How often does ----- explore? (VI.2)

- 1 = very frequently
- 2 = fairly often
- 3 = now and then
- 4 = rarely

46-47Does -----ask questions about how things work? (see VI.1 for additional relevant information)

46

A. Asks father

- 1 = yes-very often; gives specific examples
- 2 = yes-sometimes; yes without elaboration
- 3 = no

Father-Child Interaction Study Coding Manual
Card 6 (continued)

page 19

Column

- 47 B. Asks Other People
- 1 = yes - mother
 - 2 = yes - other people, e.g., grandparents, baby sitter, sibling, nursery school teacher; yes without mentioning who
 - 3 = yes - mother and other people
 - 4 = no
- 48 What does ----- do with something new or unusual? (see VI.1 for additional relevant information) (VI.4)
- 1 = independent exploration - explores it alone; takes it apart; gets excited about it; describes child's behavior without mentioning role played by others.
 - 2 = asks questions - of father and/or others
 - 3 = combines independent exploration with asking questions
 - 4 = avoids it; is afraid of new things
 - 5 = shows little interest; does nothing
- 49 Does ----- take after anyone in the family? (VIII.1)
- 1 = yes - father
 - 2 = yes - mother
 - 3 = yes - both parents
 - 4 = yes - others, e.g., siblings, grandparents, etc.
 - 5 = yes - all of us; everyone in the family
 - 6 = no - with emphasis on child being individual in his/her own right; has mind of his/her own
 - 7 = no
- 50 Does father act differently toward different children? (VIII.2)
- 1 = yes - because of age differences or sex differences
 - 2 = yes - because each is a unique individual; they're all different personalities are different for each child
 - 3 = yes - in general; without any further elaboration
 - 4 = I try not to but I know I favor -----.
 - 5 = no - with emphasis on treating them all as equals; I don't show favorites.
 - 6 = no
- 51-60 What do you think of the educational system today? (IX.1)
Is it very different from when you went to school? (IX.2)
- 51 General Impression
- 1 = bad - seems to be full of problems; doing a bad job of educating kids; general reference to drug problems in upper grades
 - 2 = mixed - some of it's good but some of it is very bad
 - 3 = good
 - 4 = no opinion - I leave that to the educators; I don't know much about it.
 - 5 = not mentioned

Father-Child Interaction Study Coding Manual
Card 6 (continued)

page 19A

Column

- 52 B. Quality and Quantity of Learning
- 1 = bad - kids not learning; don't know how to read; new math is bad; we learned the three R's and it was better for us; need more emphasis on thinking
 - 2 = mixed
 - 3 = good - kids learn a lot; do interesting things; 1 field trip; good; they know more than we ever knew
 - 4 = no opinion - I leave that to the educators; don't know much about it
 - 5 = not mentioned
- 53 C. New Teaching Techniques: Open Classroom, Unstructured Approach
- 1 = bad - progressive education is a waste; don't like open classroom idea; kids should have more structure; need someone telling them what to do; slower kids get lost in open class
 - 2 = mixed
 - 3 = good - freedom is good; kids can pace themselves; individual approach good
 - 4 = no opinion - leave that to the educators; don't know much about it.
 - 5 = not mentioned.
- 54 D. Parental Involvement
- 1 = bad - parents are too meddlesome; don't know enough and therefore shouldn't interfere
 - 2 = mixed
 - 3 = good - increased parental involvement good; parents should do even more
 - 4 = no opinion - don't know if parental involvement important or helpful
 - 5 = not mentioned
- 55 E. Role of Teachers, Principals, etc.
- 1 = bad - not involved enough; overworked; don't help students enough or give them adequate attention
 - 2 = mixed - some try hard but others don't care
 - 3 = good - they take a more active interest in the students now; they're more "human"
 - 4 = no opinion - I leave that to the experts; don't know about the teachers
 - 5 = not mentioned
- 56 F. Supportive Services
- 1 = bad - schools shouldn't be concerned with emotional growth; should just teach
 - 2 = mixed - counseling is good but not in place of teaching
 - 3 = good - counseling and guidance good; wish that had been available when I went to school
 - 4 = no opinion - don't know about guidance and counseling
 - 5 = not mentioned

Father-Child Interaction Study Coding Manual
Card 6 (continued)

page 20

Column

- 57 G. Decrease in Discipline
 1 = bad - not enough discipline; kids run wild; need to crack
 down in schools
 2 = mixed
 3 = good - lack of concern with dress regulations, etc. is good
 4 = no opinion - leave that to the experts to decide
 5 = not mentioned
- 58 H. Improved Facilities and Equipment
 1 = bad - too much emphasis on fancy equipment and not enough
 on work
 2 = mixed
 3 = good - new buildings help kids learn; teaching machines good
 4 = no opinion
 5 = not mentioned
- 59 I. Lack of Equipment and Facilities
 1 = bad - schools are understocked; overcrowded
 2 = mixed
 3 = good
 4 = no opinion
 5 = not mentioned
- 60 J. Higher Financial Expenditure
 1 = bad - too much money spent on education; teachers overpaid;
 funds are mismanaged and wasted
 2 = mixed
 3 = good - in favor of taxes, millages; higher salaries for
 teachers
 4 = no opinion - I don't know how the money is spent
 5 = not mentioned
- 61 Why don't most fathers get involved in children's education? (IX.3)
 1 = lack of time - too tired when get home from work; use time
 after work to get other things done
 2 = lack of necessary education and/or skills to help out
 3 = classes, activities, meetings, etc. always held when I'm at work
 4 = think of it as mother's role
 5 = afraid or uncomfortable because it brings back bad memories of
 own school days
 6 = not interested; lazy; can't be bothered; prefer own interests
 or hobbies
 7 = other reasons
 8 = don't know

Father-Child Interaction Study Coding Manual
Card 6(continued)

page 21

Column

62

What would you like to get involved in? (IX.4)

- 1 = meeting and committees - PTA; planning groups; school board meetings
- 2 = talking more to teachers about children's progress; "Open School Day" conferences; "Parents Night"
- 3 = special activities - field trips, plays, parties; recitals
- 4 = helping in classroom - teaching skills to children; giving lect
- 5 = sports; athletics
- 6 = helping children with homework; teaching them things at home
- 7 = scouting
- 8 = whatever school would find useful; anything and everything; wants to get involved but doesn't mention specific areas
- 9 = don't want to get involved; not interested; no time for it

63-80

Blank

(If answer includes more than one choice, score the one with the most emphasis of (if equal emphasis) the first response mentioned by the father)

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Card 7: Games Interactions (see Appendix C)

9,99,999 = no information or not done

Column

1	Project #	3
2-3-4	Subject #	
5-6	Card #	07
7-8	Total # of interactions in Puzzle #1	
9-10	Total # of interactions in Puzzle #2	
11-12	Total # of interactions in Color Form	
13-14	Total # of interactions in Lotto	
<u>15-32</u>	<u>Father Responds to Child (Across all four games)</u>	
15-16	Total Category 1: Specific Direction or Correction: Verbal	
17-18	Total Category 2: Specific Direction or Correction: Nonverbal	
19-20	Total Category 3: Nonspecific Direction or Correction: Verbal	
21-22	Total Category 4: Nonspecific Direction or Correction: Nonverbal	
23-24	Total Category 5: Reward and Encouragement: Verbal	
25-26	Total Category 6: Reward and Encouragement: Nonverbal	
27-28	Total Category 7: Criticism and Aversive Correction: Verbal	
29-30	Total Category 8: Criticism and Aversive Correction: Nonverbal	
31-32	Total Category 9: Refuses or Ignores	
<u>33-50</u>	<u>Father Initiates Interaction with Child (Across all four games)</u>	
33-34	Total Category 10: Specific Direction or Correction: Verbal	
35-36	Total Category 11: Specific Direction or Correction: Nonverbal	
37-38	Total Category 12: Nonspecific Direction or Correction: Verbal	
39-40	Total Category 13: Nonspecific Direction or Correction: Nonverbal	
41-42	Total Category 14: Reward and Encouragement: Verbal	
43-44	Total Category 15: Reward and Encouragement: Nonverbal	

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Column

45-46	Total Category 16: Criticism and Aversive Correction: Verbal
47-48	Total Category 17: Criticism and Aversive Correction: Nonverbal
49-50	Total Category 18: Refuses or Ignores
51-52-53	Total Father Responds (categories 1-9; cols. 13-32)
54-55-56	Total Father Initiates (categories 10-18; cols. 33-50)
57-58-59	Mean of Grand Total to one correct decimal (grand total divided by # of puzzles done)
60-61-62	Total Nurturance (sum of categories 1-6, 10-15)
63-64	Total Non-nurturance (sum of categories 9,18)
65-66	Total Restrictiveness (sum of categories 7,8,16,17)
67-68	Total Fully Meeting Explicit Needs (sum of categories 1,2)
69-70	Total Partially Meeting Explicit Needs (sum of categories 3,4)
71-72	Total Verbal and Nonverbal Reinforcement (sum of categories 5,6,14,15)
73-74	Total Meeting Implicit Needs (sum of categories 10,11,12,13)
75-76	Total Not Meeting Needs and Ignoring (sum of categories 9,18)
77-78	Total Aversive Verbal (sum of categories 7,16)
79-80	Total Aversive Nonverbal (sum of categories 8,17)

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Card 8: DeVries Scores - first year (Piaget)

(See Appendix D for details of scoring and coding)

9,99,999 = no information

Column:

1	Project #	3
2-3-4	Subject #	
5-6	Card #	09
<u>7-21</u>	<u>Child's performance on Piaget tasks</u>	
7-8	Highest Performance level on Guessing Game (0 - 10)	
9	Highest performance level on Conservation of Mass (0 - 7)	
10	Highest performance level on Class Inclusion (0 - 6)	
11	Highest performance level on Conservation of Length (0 - 7)	
12	Highest performance level on Family Egocentrism (0 - 4)	
13	Highest performance level on Conservation of Number (0 - 9)	
14	Highest performance level on Sex Role Constancy, Girl (0 - 9)	
15	Highest performance level on Sex Role Constancy, Boy (0 - 9)	
16	Highest performance level on Sex Role Constancy, Same Sex (0 - 9)	
17	Highest performance level on Sex Role Constancy, Opposite Sex (0-9)	
18-19	Highest performance level on Magic Interview (0 - 12)	
20-21-22	Mean Total performance, i.e., mean percent equivalents of the highest levels earned on all totals (mean of columns 7-15, 18-19), correct to 1 decimal place	
<u>23-45</u>	<u>Child's Verbalizations of Piaget tasks</u>	

Category scheme for Piaget verbalizations:

- 1) Nonconservation of Inconstancy - No Response or Irrelevant Response
- 2) Nonconservation or Inconstancy-Focus on E's Action-change occurs because E did it, moved it, rolled it, bent it; because E said the magic words, etc.
- 3) Nonconservation or Inconstancy - Perceptual Focus - because its longer, bigger, wider; because these come down to here, etc.
- 4) Conservation or Constancy - No Response or Irrelevant Response
- 5) Conservation or Constancy - Perceptual Focus - I see it's the same; it's big here but small here; additional sex role attributes (e.g., her hair is still long); compensation of relations; identity (e.g., it still looks the same), etc.

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Card 8 (continued)

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Column

	6) Conservation or Constancy - <u>Action Focus</u> - addition-subtraction (e.g., you'd have to add some); empirical reversibility (e.g., you could put it back the other way), etc.
	7) Conservation or Constancy - <u>Generalization of Principle</u> - it stays the same; she can't change because she has to stay that way, etc.
23-24-25	% of all the child's responses that are category 1, correct to 1 decimal place
26-27-28	% of all the child's responses that are category 2, correct to 1 decimal place
29-30-31	% of all the child's responses that are category 3, correct to 1 decimal place
32-33-34	% of all the child's responses that are category 4, correct to 1 decimal place
35-36-37	% of all the child's responses that are category 5, correct to 1 decimal place
38-39-40	% of all the child's responses that are Category 6, correct to 1 decimal place
41-42-43	% of all the child's responses that are category 7, correct to 1 decimal place
44-45	Total number of Relevant Verbalizations of the child, i.e., the total number of verbalizations which are in categories 2,3,5,6,6
46-80	Blank

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Card 9: Reliability Observations Check (Father Behaviors)
(See Appendix A for definition of interactions)9,99, 999 = no information
0 = no interactionsColumn

1	Project #	3		
2-3-4	Subject #			
5-6	Card #	09		
			<u>New Category</u>	<u>Old Category</u>
7-8	Verbal reinforcement		(1)	(1)
9-10	Physical reinforcement		(2)	(2)
11-12	Consulting		(3)	(4)
13-14	Ordering with explanation		(4)	(5)
15-16	Preventive warning and reminding		(11)	(11)
17-18	Bribing		(12)	(12)
19-20	Other psychological manipulation		(13)	(14)
21-22	Preventive manipulation of environment		(24)	(22)
23-24	Correcting (in neutral form)		(26)	(24)
25-26	Fully meeting explicit needs		(14)	(15)
27-28	Partially meeting explicit needs		(15)	(16)
29-30	Not meeting explicit needs		(16)	(17)
31-32*	Initiates & encourages child in conversation		(17)	(18a)
33-34*	Stops talking to listen to child's comment		(18)	(18b)
35-36	Continues talking without stopping to listen to child's comment		(19)	(18c)
37-38*	Other responses to implicit needs of child		(20)	(18d)
39-40	Communicating affection		(21)	(19)
41-42	Sharing activities		(22)	(20)
43-44	Requesting		(23)	(21)

*All related to meeting implicit needs of child, as coded in pilot study, where all 3 added together to compute score for meeting implicit needs.

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<u>Column</u>		<u>New Category</u>	<u>Old Categ</u>
45-46	Asking information	(25)	(23)
47-48	Aversive ordering without explanation	(6)	(6a)
49-50	Nonaversive ordering without explanation	(5)	(6b)
51-52	Threatening	(7)	(7a)
53-54	Other aversive verbal stimuli	(8)	(7b,c)
55-56	Aversive non-verbal stimuli	(9)	(8)
57-58	Physically stopping undesirable behavior in a non-aversive fashion	(10)	(10)
59-61	Total Nurturance (7-28; 31-34; 37-46)		
62-64	Total Non-nurturance (29-30; 35-36)		
65-67	Total restrictiveness (47-58)		
68-70	Total number interactions (total of 7-58 <u>or</u> 59-67)		
71-80	Blank		

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Card 10: Puzzle #1 Interactions

9,99,999 = no information

Column

1	Project #	3
2-3-4	Subject #	
5-6	Card #	10
<u>7-24</u>	<u>Father Responds to Child</u>	
7-8	Total Category 1: Specific Direction or Correction: Verbal	
9-10	Category 2: Specific Direction or Correction: Nonverbal	
11-12	Category 3: Nonspecific Direction or Correction: Verbal	
13-14	Category 4: Nonspecific Direction or Correction: Nonverbal	
15-16	Category 5: Reward and Encouragement: Verbal	
17-18	Category 6: Reward and Encouragement: Nonverbal	
19-20	Category 7: Criticism and Aversive Correction: Verbal	
21-22	Category 8: Criticism and Aversive Correction: Nonverbal	
23-24	Category 9: Refuses or Ignores	
<u>25-42</u>	<u>Father Initiates Interaction with Child</u>	
25-26	Category 10: Specific Direction or Correction: Verbal	
27-28	Category 11: Specific Direction or Correction: Nonverbal	
29-30	Category 12: Nonspecific Direction or Correction: Verbal	
31-32	Category 13: Nonspecific Direction or Correction: Nonverbal	
33-34	Category 14: Reward and Encouragement: Verbal	
35-36	Category 15: Reward and Encouragement: Nonverbal	
37-38	Category 16: Criticism and Aversive Correction: Verbal	
39-40	Category 17: Criticism and Aversive Correction: Nonverbal	
41-42	Category 18: Refuses or Ignores	
43-44	Total number Interactions in Puzzle #1 (categories 1-18; cols.7-42)	

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Card 10 (continued)

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Column

45-46	Total Father Responds in Puzzle #1 (categories 1-9; cols. 7-24)
47-48	Total Father Initiates in Puzzle #1 (categories 10-18; cols. 25-42)
49-50	Total Nurturance in Puzzle #1 (sum of categories 1-6, 10-15)
51-52	Total Non-nurturance in Puzzle #1 (sum of categories 9,18)
53-54	Total Restrictiveness in Puzzle #1 (sum of categories 7,18,16,17)
55-56	Total Fully Meeting Explicit Needs in Puzzle #1 (sum of categories 1,2)
57-58	Total Partially Meeting Explicit Needs in Puzzle #1 (sum of categories 3,4)
59-60	Total Verbal & Nonverbal Reinforcement in Puzzle #1 (sum of categ. 5,6,14,15)
61-62	Total Meeting Implicit Needs in Puzzle #1 (sum of categ. 10,11, 12 13)
63-64	Total Not Meeting Needs and Ignoring In Puzzle #1 (sum of categ. 9,18)
65-66	Total Aversive Verbal in Puzzle #1 (sum of categories 7,16)
67-68	Total Aversive Nonverbal in Puzzle #1 (sum of categories 8,17)
69-80	Blank

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Card 11: Puzzle #3 Interactions

9,99,999 = no information

Column

1	Project #	3
2-3-4	Subject #	
5-6	Card #	11
<u>7-24</u>	<u>Father Responds to Child</u>	
7-8	Total Category 1: Specific Direction or Correction: Verbal	
9-10	Category 2: Specific Direction or Correction: Nonverbal	
11-12	Category 3: Nonspecific Direction or Correction: Verbal	
13-14	Category 4: Nonspecific Direction or Correction: Nonverbal	
15-16	Category 5: Reward and Encouragement: Verbal	
17-18	Category 6: Reward and Encouragement: Nonverbal	
19-20	Category 7: Criticism and Aversive Correction: Verbal	
21-22	Category 8: Criticism and Aversive Correction: Nonverbal	
23-24	Category 9: Refuses or Ignores	
<u>25-42</u>	<u>Father Initiates Interaction with Child</u>	
25-26	Category 10: Specific Direction or Correction: Verbal	
27-28	Category 11: Specific Direction or Correction: Nonverbal	
29-30	Category 12: Nonspecific Direction or Correction: Verbal	
31-32	Category 13: Nonspecific Direction or Correction: Nonverbal	
33-34	Category 14: Reward and Encouragement: Verbal	
35-36	Category 15: Reward and Encouragement: Nonverbal	
37-38	Category 16: Criticism and Aversive Correction: Verbal	
39-40	Category 17: Criticism and Aversive Correction: Nonverbal	
41-42	Category 18: Refuses or Ignores	
43-44	Total number Interactions in Puzzle #3 (categories 1-18; cols.7-42)	

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Card 11 (continued)

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Column

45-46	Total Father Responds in Puzzle #3 (categories 1-9; cols. 7-24)
47-48	Total Father Initiates in Puzzle #3 (categories 10-18; cols. 25-42)
49-50	Total Nurturance in Puzzle #3 (sum of categories 1-6, 10-15)
51-52	Total Non-nurturance in Puzzle #3 (sum of categories 9,18)
53-54	Total Restrictiveness in Puzzle #3 (sum of categories 7,18,16,17)
55-56	Total Fully Meeting Explicit Needs in Puzzle #3 (sum of cats. 1,2)
57-58	Total Partially Meeting Explicit Needs in Puzzle #3 (sum of cats. 3,4)
59-60	Total Verbal & Nonverbal Reinforcement in Puzzle #3 (sum of cats. 5,6,14,15)
61-62	Total Meeting Implicit Needs in Puzzle #3 (sum of cats. 10,11,12,13)
63-64	Total Not Meeting Needs & Ignoring in Puzzle #3 (sum of cats. 9,18)
65-66	Total Aversive Verbal in Puzzle #3 (sum of categories 7,16)
67-68	Total Aversive Nonverbal in Puzzle #3 (sum of categ. 8,17)
69-80	Blank

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Column	Sense-Card Equivalent	Content	Variable
1	A 1	Project # 3	
2-3-4	2-3-4	Subject #	
5-6	5-6	Card # 12	
		<u>Binet Face Sheet and IQ Scores</u>	
7	7	Absorbed by Task	531
8	8	Reaction during Test Performance (a) normal activity level	532
9	9	(b) initiates activity	533
10	10	(c) Quick to respond	534
11	11	Emotional Dependence (a) socially confident	535
12	12	(b) realistically self-confident	536
13	13	(c) comfortable in adult company	537
14	14	(d) assured	538
15	15	Problem-solving Behavior (a) persistent	539
16	16	(b) reacts to failure realistically	540
17	B 1	(c) eager to continue	541
18	2	(d) challenged by hard tasks	542
19	3	Indep of Examiner Support (a) needs minimum of commendation	543
20	4	Was it hard to establish a positive relat w/ this person?	544
		1 = no	
		2 = yes	
1-22-23	5-6-7	Stanford-Binet IQ Score - 2nd year - Old Norms	545
4-25-26	8-9-10	Stanford-Binet IQ Score - 2nd year - New Norms	546
		<u>DeVries Performance</u>	
27-28	11-12	Highest Performance - Guessing Game	547
29	13	Highest Performance - Conservation of Mass	548
30	14	Highest Performance - Class Inclusion	549
31	15	Highest Performance - Conservation of Length	550
32	16	Highest Performance - Family Egocentrism	551
33-34	C 1-2	Highest Performance - Conservation of Number (00-09)	552
35-36	3-4	Highest Performance - Sex Role: Girl (00-09)	553
37-38	5-6	Highest Performance - Sex Role: Boy (00-09)	554
39-40	7-8	Highest Performance - Sex Role: Same (00-09)	555
41-42	9-10	Highest Performance - Sex Role: Opposite (00-09)	556
43-44	11-12	Highest Performance - Magic Interview	557
45-46-47	13-14-15	Piaget Mean Total Performance (MTP) to 1 decimal place	558
		<u>Piaget Verbalizations</u>	
48-49-50	C16-D1-2	% of Category 1 correct to one decimal place	559
51-52-53	3-4-5	% of Category 2 correct to one decimal place	560
54-55-56	6-7-8	% of Category 3 correct to one decimal place	561
57-58-59	9-10-11	% of Category 4 correct to one decimal place	562
60-61-62	12-13-14	% of Category 5 correct to one decimal place	563
63-64-65	15-16-E 1	% of Category 6 correct to one decimal place	564
66-67-68	2-3-4	% of Category 7 correct to one decimal place	565
69-70	5-6	Total Number of Piaget Relevant Verbalizations	566
71-72-73	7-8-9	Child's Age at Piaget Testing in Years and Months	567
74	10	Did Child Go to Preschool? 1 = no; 2 = yes	568

Computer will calculate the following variables:

Variable #

(a) Mean Motivation While Taking the Binet = Sum of Variables #531 through 543 divided by 13	569
(b) Person-Oriented Motivation on Binet = Sum of Variables #533 + 534 + 535 + 536 + 537 + 538 + 543	570
(c) Task-Oriented Motivation on Binet = Sum of Variables #531 + 532 + 539 + 540 + 541 + 542	571
(d) Piaget Factor I (Sex Role Constancy) = Sum of Variables #553 through 556	572
(e) Piaget Factor II (Conservation) = Sum of Variables #550 + 552	573
(f) Piaget Factor III (Interpersonal Inferring) = Sum of Variables #547 + 557	574
(g) Piaget Factor IV (Class Inclusion) = Variable # 549	575
(h) Piaget Factor V (Un-named) = Variable #551 - 548	576
(i) Change in Mean Motivation While Taking Binet = Variable #568 - Variable E 20	577
(j) Change in Person-Oriented Motivation - 569 - 523	578
(k) Change in Task-oriented Motivation = #570 - 524	579
(l) Change in IQ: Old Norms = 545 - E 23	580
(m) Change in IQ: New Norms = 546 - E 26	581
(n) Change in Piaget MTP = 558 - H 20	582
(o) Change in Piaget Verbalizations = 566 - H 44	583
(p) Change in Piaget I (Sex Role) = 571 - 518	584
(q) Change in Piaget II (Conservation) = 572 - 519	585
(r) Change in Piaget III (Interpersonal Inferring) = 573 - 521	586
(s) Change in Piaget IV (Class Inclusion) = 574 - 522	587
(t) Change in Piaget V (Un-named) = 575 - 520	588

APPENDIX A

CODING MANUAL FOR CATEGORIES OF FATHER-CHILD INTERACTION

Definition of One Unit of Interaction

The unit for coding father-child behaviors is an interaction. Interaction is defined as either an action which is initiated by a father or a reaction to the child's words or behaviors. For example, a father may initiate interaction by telling his child something, "Give me that book", or by asking a question, "When is your birthday?" He may react to his child's saying, "I want a cookie", or react to the child snuggling up to him.

The father's action or reaction, all in one breath or constituting the same thought is coded as one interaction. For example, "Come on, you can do it. Come, you know you can do it", is coded as one interaction. However if there is a pause of five seconds or more, even if it is the same thought or the same category, an additional interaction is coded. For example, if the father says "Stop that", pauses six seconds, and says again, "Stop touching the tape", that is coded as two interactions. If an action involves a verbal and a physical component, both of these get scored.

More than one interaction is coded when there is a change of category, or when the father is interrupted by the interviewer or the child. For example, when the father says, "Come here, that's a good boy. Sit by me!", three interactions are coded: (1) Come here--Order without explanation; (2) That's a good boy -- Verbal Reinforcement; and (3) Sit by me -- Order without Explanation. An example of when a father's thought is interrupted is: the father telling the child, "You like to visit your aunt", the child saying, "Aunt Sally . . .", and the father then continuing, "and you visit her almost every day".

Scoring Procedures

The coding for each protocol was done for one hour in four 15-minute segments. For data analysis, a total of 30 minutes with the most interaction (two consecutive 15-minute segments) will be used.

Description of Categories

1. Verbal Reinforcement (1)*

Any verbal rewarding after the occurrence of the child's behavior; must be in response to the child.

e.g., responding to child with positive evaluative word such as "good" or "that's nice"; praising the child; expressing appreciation for the child's effort; if father asks information question, consults, or converses with the child and then says, "yes, that's right"; agrees with response of the child; verbally encourages child to proceed with what child is saying or doing.

2. Physical Reinforcement (2)

Any physical rewarding after the occurrence of the child's behavior; must be in response to the child.

e.g., hugging or touching child in response to something child has said or done; giving candy; hanging up a picture child has given to father.

3. Consulting (4)

Any verbal attempt to influence which has an element of asking the child what his wishes are; refers to attempts to influence child's behavior rather than just being conversational; not an obvious problem situation where father is trying to coax or humor response from child (which would be scored as #13).

e.g., "Would you like to get a book?" (which means in effect that father wants child to bring a book); "do you want to play some games with the man?".

4. Ordering with Explanation (5)

A limit-setting order given the child with an explanation as to what the child did wrong, why it is necessary to set limits, etc.; include retroactive limit setting (any verbal limit setting after the occurrence of the child's behavior) with an explanation.

e.g., "Stop talking so loudly because I can't hear"; "Don't do that next time because its not nice".

5. Ordering without Explanation - Nonaversive (6a)

A limit-setting order given without any explanation as to what the child did wrong, why it is necessary to set limits, etc.; include retroactive limit setting (any verbal limit setting after the occurrence of the child's behavior) without an explanation.

e.g., an order given in a neutral tone, "Put that down"; don't do that again".

* # to right of item refers to old coding system.

6. Ordering without Explanation - Aversive (6b)

A limit-setting order given without any explanation as to what the child did wrong, why it is necessary to set limits, etc.; include retroactive limit setting (any verbal limit setting after the occurrence of the child's behavior) without an explanation.

e.g., an order given in an emotional, disapproving tone; yelling, "Stop that"; saying forcefully "I told you to come back here and sit down".

7. Aversive Verbal Stimuli - Threatening (7a)

Any threatening words directed at the child -- statement must include a reference to punishment.

e.g., "If you don't stop, I'll hit you"; "Keep that up and no dessert for you tonight"

8. Other Aversive Verbal Stimuli (7b)

Any unpleasant words, scolding, name calling, negative evaluating, sarcasm, yelling, correcting child in an aversive tone of voice; does not include aversive orders (which get scored under #6).

e.g., "Bad boy"; "You don't know what you're talking about, that's blue"; father calls child's name sharply or angrily; saying "no" angrily or strongly to child; "You stupid child".

9. Aversive Nonverbal Stimuli (8)

Physical punishment in any form; other physical indications of disapproval; physically stopping undesirable behavior in an aversive way.

e.g., spanking; exile (removing child from scene); pushing child to get him to move; frowning; pointing angrily to chair as an indication that child should sit down again; grabbing from the child's hands something that father doesn't want child to have.

10. Physically Stopping Undesirable Behavior in a Nonaversive Fashion (10)

Any physical technique used to stop or influence the ongoing behavior of the child which is done by the father in a neutral or nonaversive way.

e.g., gently taking something from the child's hands that the father doesn't want the child to touch; leading a child away from the interviewer's tape recorder and sitting the child down in a chair.

11. Preventive Warning and Reminding (11)

A reminder or warning statement to the child given before the undesirable behavior occurs (no punishment referred to); score only if obvious that child is about to do something.

e.g., "Be careful not to spill it"; "Remember, I told you not to do that so don't do it"; "Watch what you're doing".

12. Bribing (12)

Any verbal attempt to influence the child by offering a bribe.

e.g., "I'll give you a cookie if you answer the man's question".

13. Other Psychological Manipulation (14)

Any verbal technique such as coaxing, humoring, distracting, requesting, etc., which attempts to get the child to want to comply; an obvious attempt by the father to resolve a problem situation by coaxing (humoring) the child to do or say something specific that the father has in mind; requesting in a gentle tone of voice.

e.g., "C'mon now, honey"; "Please do it for me"; "Be a good boy and come sit next to me"; "Why don't you play with this instead".

Items #14 - 16 refer to explicit needs14. Fully Meeting Explicit Needs (15)

Explicit needs refer to those behaviors of the child which are clearly directed towards the father in an attempt to seek his reaction (asking a question, asking for something); the word fully refers to any need-meeting response in terms of the literal meaning of the expressed need and includes such behaviors as simple responding or answering, complying with a child's request, responding physically, and verbalizing or acknowledging the child's feelings.

e.g., saying "Yes" when child calls father; answering a question; giving a cookie when the child says, "I want a cookie"; giving permission when child asks if he can play with something; helping to tie the child's shoe when asked; comforting the child and saying, "Yes, I know you're tired" when child yawns and puts his head in father's lap.

15. Partially Meeting Explicit Needs (16)

Any response which does not completely meet the expressed need but nevertheless constitutes some response to the expression of need; include such behaviors as explaining reality (explaining to child why his request is being denied), suggesting means of self-help and vaguely promising.

e.g., "No, you can't have a cookie now because it's too close to dinner time"; "Why don't you stand on the chair and reach it yourself"; "Your mother and sister will be back later" when child says he wants to see them; "I'll read you a story after this interview is over".

16. Not Meeting Explicit Needs (17)

Refusing to meet or not responding at all to the child's expressed need. Addressing comment to the interviewer immediately following a question, request, or physical action by the child aimed at eliciting the father's attention (i.e., rather than responding to child).

e.g., father continues talking to interviewer when child tugs at father's sleeve or asks for a drink of water; continues ongoing behavior when child calls "daddy" or says "Look at this"; says "No, you can't" when child says, "I want to watch TV".

Items # 17 - 20 refer to implicit needs17. Initiates and Engages Child in Conversation (18a)

Conversational interchanges in which the father is not trying to manipulate the child's behavior but is rather responding to the child's implicit needs for companionship, inclusion in the ongoing activity, etc.; include such behaviors as asking the child an information question that the father really knows the answer to in order to include the child in the conversation, commenting on a child's statement, continuing a conversation initiated by either the father or the child.

e.g., "What are some of the games we like to play together?"; "You had fun doing that, didn't you?"; saying to a child who is concentrating on a puzzle, "Oh, it's almost done, isn't it?"; "Did you really do that? Tell me what happened next" in response to child's relating a story; turning to a child who is bored or restless and saying, "Why don't you finish telling the man about our vacation"; "uh huh" or "um" in response to child's answer.

18. Stops Talking to Listen to Child (18b)

Father stops talking to interviewer immediately following comment by child in order to listen to child's comment.

e.g., father telling interviewer about Xmas presents purchased for child and when child chimes in with list of gifts father stops talking to listen to child's response.

19. Continues Talking without Stopping to Listen to Child (18c)

Father addresses comment to interviewer immediately following comment by child (i.e., without stopping to listen to child).

e.g., father continues talking to interviewer about summer vacation even when child starts to tell interviewer what he did during vacation.

20. Meeting Other Implicit Needs (18d)

Father spontaneously satisfies physical or other needs of child even though child hasn't expressed need.

e.g., father brings something for child to drink even though child hasn't asked for anything; gives pillow for child to lean against even though unrequested.

21. Communicating Affection (19)

Any verbal or physical behavior which expresses affection.

e.g., saying "Honey", "Dear", etc.; saying to the interviewer, "She's my best girl"; hugging or kissing the child; patting child's head; cuddling child on father's lap; laughing with obvious pleasure at something child has said or done; smiling; using term of endearment in the middle of coaxing a child.

22. Sharing Activities (20)

Any behavior in which the father initiates sharing an activity with the child (it must be an explicit example of doing something together); not an obvious problem situation where the father is trying to influence the child's behavior.

e.g., "Let's split this cookie"; "Let's answer the questions together"; "Why don't we look for the book together and bring it out here".

23. Requesting (21)

Father-initiated behavior in which the child is asked (not ordered) to do something; do not include gentle requests aimed at influencing the child's ongoing behavior (which would be scored under #13).

e.g., "Would you please bring me an ashtray".

24. Preventive Manipulation of the Environment (22)

Manipulating the environment so that the child's needs will not arise or will not be frustrated.

e.g., bringing toys into the room before the interview starts so that the child won't get restless.

25. Asking Information (23)

Father asks child an information question in which it is reasonable to infer that the father doesn't know the answer.

e.g., "When is your birthday?"; "I can't remember what I bought you for Xmas, do you remember?"; "What's the name of that book you always ask me to read to you?".

26. Correcting in a Neutral Tone (24)

Father corrects or disagrees with factual information or cognitive response given by a child in a nonadversive tone; if tone is sharp, annoyed, or otherwise aversive, score under Other Aversive Verbal (#8).

e.g., "We went to your aunt's house, not your grandmother's"; "No, your shirt is red"; "You drew that letter backwards, this is how you draw it".

Father-Child Interaction Study Coding Manual
Appendix B

Factors Affecting Test Performance - Stanford Binet

Rating:

4	3*	2*	1
<u>Attention</u>			
a) Absorbed by task			Easily Distracted
Examples: Goes through test session without any breaks; Makes no comments like "I'm tired, when's it over?, I want to go home."	Tends Toward ←	→ Tends Toward	Examples: Noises, test kit, other items in room distract him to the extent that he can't concentrate on test items.

Reactions During Test Performance

a) Normal activity level	Hyperactive or depressed
Examples: Sits on seat, but not too inactive	Examples: All over the place--out of seat, on table, under table, on floor. Or depressed: little speech, looks sad, little motor activity.
b) Initiates activity	Waits to be told
Examples: Takes hold of test materials; says examiner needn't repeat identical directions on sub-tests; or doesn't require this repetition	Examples: Requires that examiner repeat all identical directions; Makes examiner manipulate all test materials for him.
c) Quick to respond	Urging needed
Examples: Time between presentation of stimulus material and response is brief	Examples: Lengthy pauses between stimulus presentation and response

*Note on ratings of 2 and 3; These ratings can mean one of two things: (1) child is consistently tending toward a 4 or 1 rating; or (2) he is variable between 4 and 1 (heavier weighting on 4 than 1 giving him a rating of 3; heavier rating on 1 than 4 giving him a 2 rating.

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Appendix B (continued)

Rating:

4

3

2

1

Emotional Independence

a) Socially confident

Examples:

Goes with examiner easily;
friendly, talkative, tells
stories

Tends
Toward

Tends
Toward

Shy, reserved, reticent

Examples:

Responds only to questions
asked; refuses to go with
examiner.

b) Realistically self-confident

Examples:

Is not afraid to try diffi-
cult tasks but knows when
something is too difficult
for him and accepts this.

Distrusts own ability or
overconfident

Examples:

Asks questions like, "Was
that right? Is that how you
do it?" Or says "That's easy"
for tasks that he fails at.

c) Comfortable in adult company

Examples:

Relates comfortably with
examiner; talks, participates

Ill at ease

Examples:

Tense; body language indicates
discomfort, anxiety

d) Assured

Examples:

Willing to try; doesn't care
much about examiner's opinion
of his performance as sets his
own standards

Anxious about success

Examples:

Needs assurance, feedback
about his performance;
Won't try hard tasks

Problem Solving Behavior

a) Persistent

Examples:

Works on task for reasonable
amount of time before giving
up

Gives up easily or can't give
up.

Examples:

Unable to quit task even when
examiner suggests going on
(examiner must pull task away);
Or-subject gives meager try
then says, "I can't do it", but
does do it with encouragement
from examiner.

b) Reacts to failure realistically

Examples:

Not discouraged by failure

Withdrawing, hostile, or denying

Examples:

Accuses examiner of being wrong
attacks examiner or gives
evidence of oppositional,
negative behavior

Father-Child Interaction Study Coding Manual
Appendix B (continued)

Rating:

4

3

2

1

c) Eager to continue

Examples:

Shows excitement about test; eagerly anticipates new items.
Says things like, "This is really fun," "I wish we could do this all day."

Tends
Toward

Tends
Toward

Seeks to terminate

Examples:

Says things like, "I want to go home; I want to see my mommy"; or cries

d) Challenged by hard tasks

Examples:

Smiles; says, "That was fun"

Prefers only easy tasks

Examples:

Complains that things are too difficult

Independence of Examiner Support

a) Needs minimum of commendation

Examples:

Works well without support

Needs constant praise and encouragement

Examples:

Won't respond without examiner saying "very good" often.

Father-Child Interaction Study Coding Manual
Appendix C

Scoring Manual for Games Interactions

1. General Scoring Instructions

- A. Score each puzzle separately: (1) Puzzle #1; (2) Puzzle #2; (3) Puzzle #3; (4) Color-Form Board; and (5) Lotto.
- B. Start to score each puzzle at the point when the interviewer introduces it to the child, e.g., says "Here's the first puzzle", places the second puzzle in front of the child, etc.
- C. Father Responds to Child - Score these categories if: (1) father responds to explicit verbal or nonverbal request for help or encouragement from child; (2) it is reasonable to infer, based upon observable acts, that the child is depending upon the father's help throughout the puzzle (or any portion of it) even though the child does not repeat the explicit help-seeking behavior before each response of the father, e.g., interviewer notes that "child continually looks towards father for help"; a succession of father behaviors immediately follow a child's verbal or nonverbal request for help, etc.
- D. Father Initiates Interaction with Child - Score these categories if the father's behavior is not in response to any explicit verbal or nonverbal request from the child, i.e., spontaneous behavior from the father.

II. Categories

A. Father Responds to Child:

1. Specific Direction or Correction: Verbal - father answers child's request for help with specific directions or instructions; specific corrections in a neutral tone.
Examples: Put that right on top of that; turn it to the left so the point will fit in the hole; match up the red circles.
2. Specific Direction or Correction: Nonverbal - father responds to child's request for help by showing specific directions or instructions; shows specific corrections in a neutral manner.
Examples: puts pieces into puzzle for child; shows child exact angle at which to hold piece.
3. Nonspecific Direction or Correction: Verbal - father answers child's request for help with nonspecific directions or instructions; gives hints or clues about how to do puzzle; nonspecific corrections in a neutral tone.
Examples: turn the pieces over first; try to find the other leg; think what that would match up with; turn the piece around until it fits; match the same colors.

Father-Child Interaction Study Coding Manual
Appendix C (continued)

4. Nonspecific Direction or Correction: Nonverbal - father responds to child request for help by showing nonspecific directions or instructions; shows nonspecific corrections in a neutral manner.
 Examples: demonstrates process of turning pieces around; helps turn pieces of puzzle over; points at Lotto piece while saying "find one like that".
 5. Reward and Encouragement: Verbal - father responds to child's request for reward or encouragement with positive verbal statement; encourages child's independent efforts.
 Examples: yes, that's fine; you're really doing a good job all by yourself; what do you think about that piece?; even I would have trouble doing that one; yes I know it's hard but keep trying.
 6. Reward and Encouragement: Nonverbal - father responds to child's request for reward or encouragement with positive physical reinforcement; physically encourages child's independent efforts.
 Examples: nods yes to child's inquiring look about how he/she is doing; hugs child when he/she finishes puzzle; sits next to child and smiles as child does puzzle.
 7. Criticism and Aversive Correction: Verbal - father responds to child's request for help with negative evaluation or aversive statement.
 Examples: no, you're doing it all wrong; are you too stupid to do it alone; I guess you're not too bright.
 8. Criticism and Aversive Correction: Nonverbal - father responds to child's request for help with aversive physical behavior.
 Example: grabs pieces of puzzle away from child; slaps child's hands; shakes head no in disgust.
 9. Refuses or Ignores - father does not respond to child's request for help or encouragement; father refuses to help without offering any other encouragement or suggestions. (Note: Child's request or comment must be directed at getting father's help or attention, and not just child talking to himself/herself or to the interviewer.)
 Examples: no, I won't help you; father looks away when child looks inquiringly at him; father talks to interviewer when child makes a request; father does not respond when child says "this is hard" to him; father does not respond when child asks him "where does this go?"
- B. Father Initiates Interaction with Child
10. Specific Direction or Correction: Verbal - father spontaneously gives child specific directions or instructions; father spontaneously gives child specific corrections in a neutral tone.
 Examples: See A.1
 11. Specific Direction or Correction: Nonverbal - father spontaneously shows child specific directions or instructions; spontaneously shows correction in a neutral manner.
 Examples: see A.2

12. Nonspecific Direction or Correction: Verbal - father spontaneously gives child nonspecific directions or instructions; gives hints or clues about how to do puzzles; nonspecific corrections in a neutral tone.
Examples: see A.3; do you understand what to do?; explains directions for Lotto again to child.
13. Nonspecific Direction or Correction: Nonverbal - father spontaneously shows child nonspecific directions or instructions; shows nonspecific corrections in a neutral manner.
Examples - See A.4.
14. Reward and Encouragement: Verbal - father spontaneously rewards or encourages child with positive verbal statement; encourages child's independent efforts.
Examples: see A.5.; you amaze me at how well you did that; you did better than I thought you would.
15. Reward and Encouragement: Nonverbal - father spontaneously rewards or encourages child with positive physical reinforcement; physically encourages child's independent efforts.
Examples: see A.6.; sits next to or near child as he/she does puzzle.
16. Criticism and Aversive Correction: Verbal - father spontaneously gives child negative evaluation or makes aversive statement.
Examples: see A.7.
17. Criticism and Aversive Correction: Nonverbal - father spontaneously shows aversive physical behavior.
Examples: see A.8.
18. Refuses or Ignores - father spontaneously announces to child that he won't help with puzzles; father does not pay attention to child doing puzzles or show any interest in the child's progress.
Examples: ;you'll have to do the puzzles all by yourself; don't ask me for help; father leaves room; father looks at book or magazine while child does puzzles; father talks to interviewer about non-puzzle topics.

III. Relation of Puzzle Interaction Categories to Father-Child Interaction Categor

A. Related to Nurturance Categories

1. Fully Meeting Explicit Needs - A.1. and 2.
2. Partially Meeting Explicit Needs - A.3. and 4.
3. Verbal and Nonverbal Reinforcement - A.5. and 6.; B. 14. and 15.
4. Meeting Implicit Needs - B.10,11, 12. and 13.

B. Related to Non-nurturance Categories

5. Not Meeting Needs and Ignoring - A.9.; B.18.

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Appendix C (continued)

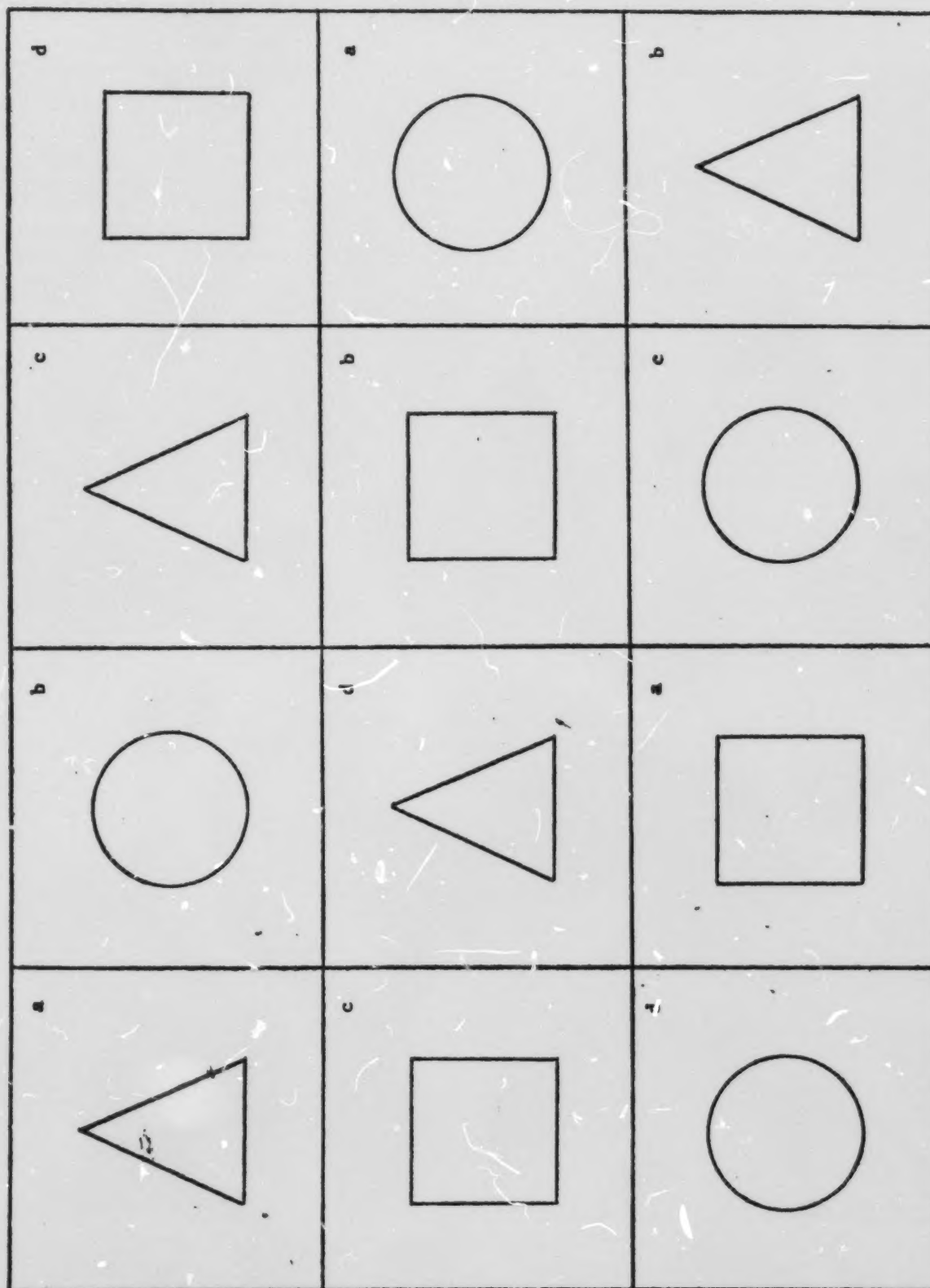
C. Related to Restrictive Categories

- 6. Aversive Verbal - A.7.; B.16.
- 7. Aversive Nonverbal - A.8.; B.17.

IV. Computations (in addition to category scores for each puzzle, not counting puzzle #3)

- A. Total number of interactions for each category (sum across 4 games or rounds)
- B. Total number of interactions for each puzzle (sum down categories or columns)
- C. Total number of interactions for entire game sequence (i.e. all 4 games)
- D. Totals corresponding to categories listed above in III.A., B. and C.
- E. Total Nurturance (k,2,3,4,5,6,10,11,12,13,14 and 15);
Total Non-nurturance (9 and 18);
Total Restrictiveness (7,8,16, and 17).

Color Form Board (a)



(a) Colored shapes were pasted on a white sheet; letters, a-d indicate the four colors used.

Father-Child Interaction Study Coding Manual
Appendix D'

Scoring Manual for DeVries (Piaget) Tasks
Piaget Scoring - DeVries system

1. Performance - Each child is scored as passing or failing each level (item) on each task. A "+" on the score sheet indicates passing; "-" indicates failure at that level.
2. Verbalizations - Each child is scored as giving or not giving each type of verbalization on each task (Note: there are no verbalizations to score on Guessing Game and Family Egocentrism). A "+" on the score sheet indicates that the child gave that type of verbalization at least once during the task; a "-" indicates that the child never gave that type of verbalization.

Following is the DeVries scoring system for performance and verbalization on Piaget Tasks:

I. Guessing Game

Assessment of each child's sequence of alternation in guessing and hiding was made by counting the number of changes from left to right, according to the system used by Gratch. Only the first four guessing trials were used to assess strategy as these guesses in the context of positive reinforcement were viewed as reflecting the child's spontaneous projection of game strategy, uncontaminated by a challenge to the efficacy of that strategy upon failure to find the penny. Subjects were scored pass-fail on the following items: (1) Attempts to play when asked to hide; (2) does not always hide in same hand; (3) changes penny hand more than once during hiding; (4) hides correctly on at least one trial, that is, imitates mechanics of procedure; (5) does not always guess the same hand; (6) changes hand guessed more than once during guessing; (7) almost always hides correctly; (8) has competitive attitude in hiding, for example, indicates chagrin or disappointment when E guesses correctly, indicates pleasure when E is wrong, tells E to pick hand without penny or extends that hand suggestively, says E is wrong when E guesses correctly (tries to cheat), irregularly shifts penny's location, presents two empty fists when hiding, says didn't want E to find penny or is trying to fool E, inadvertently lets E see penny and then rehides or indicates chagrin; (9) uses shifting strategy in hiding; (10) uses shifting strategy in guessing.

II. Conservation of Mass

Ss were scored pass (+) or fail(-) on each of the following items:

1. Recognizes initially which ball has more to eat

+: Points to larger ball of candy when asked to show which has more to eat.

Note: Subjects who cannot do this are not testable. If an error is made, E allows S to take his choice and provides another discrimination trial, pinching some off the smaller ball so the size discrepancy is greater. If S succeeds in selecting the larger, this item is scored "+" and testing proceeds; if S again selects the smaller, testing is terminated.

2. Remembers which ball had more before shape change

+: Points to larger ball when asked to point to the one that had more before.

3. Recognizes that the ball has greater quantity or is greater in some dimension after shape change

- +: a. Says ball has more to eat
b. Says ball is bigger, fatter, rounder, higher

4. Maintains constancy at some point

+: At some time during the test, says ball has more to eat when smaller ball has been deformed.

5. Believes quantity didn't really change

+: Says smaller ball did not really get to be more to eat; did not really change on all postulations of the question (asked twice only, except in special circumstances where response was unclear)

Note: - is scored if S spontaneously verbalizes that the ball had more before, but the HD/PC has more after deformation.

6. Consistently conserves

+: Takes larger ball on both Q1 and Q2, and also on Q1b if asked.

7. Confidently conserves

+: Never even considers the possibility that the smaller may have more to eat when shape is changed; always says the ball has more

In addition, verbalized reasons for choices were scored as follows:

Nonconservation

1. No reason or irrelevant reason, e.g., "It's more/bigger," "You rolled/smashed it."
2. Quantity changed because E rolled/flattened the ball.
3. Magic
4. It looks bigger/longer/wider.

Conservation

5. No reason or irrelevant reason; description of what E did.
6. Shape/length irrelevant to quantity, e.g., "It just looks like its bigger." "It doesn't change in size, just in shape."

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Appendix D (continued)

7. Identity, e.g., "It was bigger before." "It's still little."
"Because that was the little/big one at first."
8. Empirical reversibility, e.g., "If you put it back in a ball it would still be the same size.: :If you rolled that ball (larger) out, too, it would be longer than that (sausage) one."
9. Compensation of relations, e.g., "It's flatter, but wider.: "It's longer but skinnier."
10. Addition-subtraction principle, e.g., "You can't make it bigger unless you add some more candy." "It can't change unless you break some off."
11. Generalization, e.g., "It stays the same, no matter what you do.: "It wouldn't change; it's still smaller/bigger. It would still be the same."

Verbalizations were scored separately for test items 1 and 2, and S's giving multiple reasons were given multiple scores.

III. Class Inclusion

Ss were scored as passing (+) or failing (-) each of the following items:

1. Knows referents for "all the candy" and "all the chocolate"
+: Responds correctly when asked to "Put all the candy in my hand" and "Put all the chocolate in my hand" on Question 2.
2. Understands "all" and "some" (enveloping class and subclass)
+: Responds correctly when asked whether all the candy is chocolate/mint and whether some of the candy is chocolate/mint on Q3.
3. Knows that the whole is comprised of two parts (complimentarity)
+: Responds correctly when asked what kind of candy is present on Question 6.
4. Says there is more candy than chocolate at some point
5. Knows there is more candy than chocolate after the help questions
+: Responds correctly to whether there is more candy or more chocolate on Question 1.

Note: "Candy must refer to all five items, not to mint.

In addition, verbalized reasons were scored as follows:

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Non-Inclusion Reasons:

1. Irrelevant reason or no reason given, e.g., "Because I like it," "Chocolate is good," "I don't like mint," "I looked at it," "This is chocolate and that's white."
2. Graphic impression, gross or intuitive comparison (non-numerical), e.g., "It's a whole bunch," "It's a lot," "Because all the M&M's together are bigger than one mint," "You can eat chocolate longer," "You can suck the mint longer," "Because it has more."
3. Numerical comparison of A (chocolates) with A' (mint), e.g., "Because there are four M&M's and one mint."

Inclusion Reasons:

4. Non-logical or no reason given, e.g., "Chocolate is not sweet," "Because the chocolate and the mint have lots of taste to it."
 5. Focus on whole class (B), e.g., "All of it, it's five," "Because all together it's more," "All together it's bigger."
 6. More than A is more than A, e.g., "Because there's one mint and four chocolates. If I had four and add one, I'd have more."
 7. Comparison of subclass A (chocolates) with the whole B, e.g.,
B is more than A: "Five is more than four," "There's more candy than chocolates," "All the chocolates aren't all the candy," "There are five candies and only four chocolates, and the mint makes five," "M&M's are less (not enough) than all the candy."
- B-A= 0: "Because then it would be all gone," "It won't be all gone if you eat only the chocolate/mint," "There's something left over after you take out the chocolate/mint."

IV. Conservation of Length

Ss were scored as passing (+) or failing (-) each of the following items:

1. Discriminates greater length when two sticks are aligned
+: a. Points to longer sticks when aligned on Prediction Questions.
b. Chooses longer stick on Q6 with or without aligning
2. Remembers which stick was longer before change in array
+: Correct on the majority of memory questions (Which had more before?)

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Appendix D (continued)

3. Expects constancy of length

- +: Predicts correctly that stick shown to be longer when in alignment is still longer when card covers non-aligned ends on both presentations

Note: Code "c" to indicate specific spontaneous reference to covered ends.

4. Conserves length in disalignment

- +: Selects longer stick when shorter is advanced away and when advanced toward (takes longer on Q1, Q3, and Q3c)

5. Conserves length in deformation

- +: Selects longer stick when it is bent (takes longer on Q5)

6. Believes quantity of gum does not really change

- +: Says quantity did not really get to be more gum to chew, did not really change, on all postulations of questions.

7. Conserves length with certainty

- +: Shows no vacillation or uncertainty in selecting longer stick; does not remeasure to check choice (remeasuring to demonstrate or prove to E which is longest does not warrant a score of "-" here).

In addition, verbal reasons for conservation were scored as follows:

1. Irrelevant reason or no reason given, e.g., "It's more," "It's longer," "It didn't change."
2. No verbalization, but S realigns to demonstrate.
3. Position, shape, or card cover are irrelevant to quantity, e.g., "It just looks like it's bigger," "That doesn't matter; it's still bigger," "You just moved/bent it," "You can move it and measure it."
4. Identity, e.g., "It was bigger before," "I remembered how it was at first," "I saw it before," "When it was up there, it was bigger," "It's made bigger."
5. Empirical reversibility, e.g., "If you put it here, it would come to here (indicating end differential)," "You could unbend it."
6. Compensation of relations, e.g., "It's bigger up here but smaller down there."

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Appendix D (continued)

7. Addition-subtraction principle, e.g., "You can't make that longer unless you get some more gum," "It can't change unless you break off some."
8. Generalization, e.g., "No matter what you do, it stays the same size," "This is always biggest," "It wouldn't change; it's still smaller," "It would still be the same."

V. Family Egocentrism

Ss were scored as passing (+) or failing (-) each of the following items:

1. Knows brother/sister are terms restricted to family members

+: Names no non-family members as siblings (pets may be included)

2. Understands brother/sister as relational to self

+: Does not name self when asked number or names of siblings; sib belongs to him.

Note: Some Ss seem to interpret "How many brothers/sisters do you have as 'How many _____ are in your family?' They go on to differentiate self from siblings in such a way as to indicate that they distinguish sibling terms from terms "girls/boys".

3. Understands brother/sister as relational to sibling

+: Sees self as belonging to sibling, e.g., "He has me for a brother", "I'm his brother," but may say "No" to whether _____ has any brothers/sisters, or gives contradictory responses, e.g., includes self as own brother and as brother's brother.

4. Understands brother/sister as totally reciprocal terms

+: Does not include self as own brother/sister.
Says sibling has sibling/s (Says sib has same number of sibs as he does himself).
Includes self as sibling's sibling.

If response was contradictory and contained any indication of non-reciprocity, it was scored "+" on Item 3 and "-" on Item 4.

VI. Conservation of Number

Subjects were scored as passing (+) or failing (-) each of the following items:

1. Can count correctly to 6

+: Counts from 1 to 6 correctly at some point or says plate has 6.

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2. Remembers which plate had more before the change in the array

- +: a. Answers memory Q correctly (which plate had more before?).
b. Picks 6 M&M's after constriction of length on Q1b.
c. Spontaneously verbalizes fact that it had more before.

3. Knows which plate has more when 8 M&M's are arranged in one-to-one correspondence with 7 M&M's.

- +: Selects plate with 8.

4. Knows 6 is more than 5, numerically

- +: a. Picks 6 on Q2 after counting (when 6 are in shorter line).
b. Spontaneously verbalizes fact, e.g., "This is 6 and that only has 5," "This is 5 and this is 6," as justification for selecting 6.
c. Picks 6 on Q3 after recounting.
d. Says 6 has more candy on 2b (so which has more? immediately after counting).

5. Conserves after counting help and lengthening of greater quantity to greater length

- +: a. Picks 6 on Q3 without recounting after change in array.
b. If this item not given, + if conserves without help.

6. Ever conserves without help

- +: Takes or chooses 6 on Q1.

Note: This item is intended to differentiate those subjects who make only inconstant responses from those who are inconstant but who change their mind at some point and make a constant response.

7. Believes quantity doesn't really change

- +: a. Says the 6 M&M's didn't really get to be less or the 5 didn't really get to be more.
b. If question not asked, but 3 conserves.
c. Says 6 got less or 5 got more but contradicts and elaborates in such a way as to indicate that original question was not understood.

Note: - is scored when S spontaneously verbalizes that (6) had more before, but (5) has more after change in array, regardless of answer to "really change" Q.

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8. Conserves consistently

- +: Correctly picks 6 on Q1 after constriction of length and without recounting and makes no inconstant choices thereafter.

Note: Choosing 5 on Q2 is not considered an indication of inconstancy since 2a is not a test of constancy, i.e., there is no change in the array.

- b. Picks 5 on Q1 but spontaneously changes to 6 and takes 6.

9. Conserves with certainty

- +: a. Does not hesitate, vacillate, or change mind in making constant choice.
b. Does not recount after change in array.

In addition, S's verbal reasons were scored as follows:

Reasons verbalized for nonconservation

1. Irrelevant reason or no reason given, e.g., "It's more," "It looks bigger."
2. The quantity relationship changed because E moved the M&M's.
3. Supernatural cause; magic.
4. Centration on length, e.g., "It's longer (referring to line of five M&M's)"
5. Illogical (merely descriptive) numerical reference, e.g., "This is six and this is five (but says row of five has more to eat)"
6. Illogical (merely descriptive) reference to distance between M&M's, e.g., "These are closer together, and these are farther apart (but says the row of five has more to eat)"

Reasons verbalized for conservation

7. Irrelevant reason or no reason given, e.g., "It's more," "It looks bigger."
8. Appearance is irrelevant with regard to quantity, e.g., "It just looks like more," "Making it longer (or spreading them out) doesn't make it more."
9. Identity, e.g., "It was more before," "It was more/less before, and it will still be more/less."
10. Empirical reversibility, e.g., "If you put them back the way they were before, they would still be the same," "If you would spread that one (greater quantity in shorter line) out, it would be more."
11. Compensation of relations, e.g., "It's longer, but more pushed in."
12. Addition-subtraction principle, e.g., "You can't make it more unless you add some more M&M's," "It can't change unless you take some away."
13. Generalization of conservation principle, e.g., "It stays the same no matter what you do," "It wouldn't change," "It's six and that's five," "I counted them, so I know it's more."

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Appendix D (continued)

VII. Sex Role Constancy (Boy and Girl)

Ss were scored as passing (+) or failing (-) the following items:

1. At least resists suggestion that girl can become boy

- a. Says it doesn't look like a boy
- b. Says one picture is girl, and one is boy
- c. Says neither girl nor boy
- d. Suggests counter girl-attribute or lack of some boy attribute
- e. Says is girl and boy
- f. Says it's nothing
- g. Says doesn't know what it is
- h. Contradicts specific suggestion in question, e.g.,
Q1: She wants to be a girl
Q2: Girls don't know how to do boy things
Q3: The hair would grow back
- i. Says girl can't be boy if she wants to, but then suggests a way
- j. Says, "I don't want it to"
- k. Says is girl still on any question
l. Simply "cannot change"
- m. Moral reason (including "God")
- n. Girl is made different from boy
- o. Girls like to play with boy things
- p. Suggested change makes no difference
- q. There's no such things as . . .
- r. Irrelevant statement
- s. States constancy principle, e.g., "It's born a boy."
- t. Repeats suggested change
- u. Magic can't change her.

2. Says girl cannot be boy at some point

Says girl cannot be boy on any question.

3. Says girl cannot be a real boy if she wants to.

Says no, or not real boy on Q1

Note: If says no on Q1, but suggest some way, e.g., magic, God, etc.,
+ is given on Item 1 and 3 but - is given on Item 8.

4. Says girl will not be a real boy if it played with guns and did boy things

Says it is still girl or not real boy on Q2.

5. Says girl will not be a real boy if her hair is cut short or if she puts on boy clothes.

Says is still girl on Q3a and 3b, or is not real boy

Father-Child Interaction Study Coding Manual
Appendix D (continued)

6. Says girl will not be a real boy if her hair is cut short and she wears boy clothes.

Says is still girl on Q4, or is not real boy

7. Says such a change cannot really happen.

8. Says girl will not be a real boy if she has hair and clothes like a boy's and plays with guns and does boy things.

Says is still girl on Q5, or is not real boy.

9. Says girl will not and could not be a boy and maintains this with no contradiction.

Never says girl will or can be real boy.

In addition, verbal reasons were scored as follows:

1. No reason given. A girl is believed to change into a boy if it looks or acts like a boy; "Because"; "because she's a girl".
2. The possibility of change is resisted and may be partially denied, but conclusion is an admission of change, e.g. "part boy & part girl"; "yes, if she cut her hair".
3. Appearance is irrelevant to identity, e.g., "It looks like" a boy"; "She's just pretending".
4. Additional attributes are mentioned to counter suggested changes, e.g., "He wants to be a boy:", "Girls have longer hair."
5. Absolutistic denial of change, e.g., "God made it that way," "It has to stay a boy".
6. Identity constancy, e.g., "It started out a girl, and it has to stay a girl." "Because she was born that way".

VIII. Magic Interview

Ss were scored as passing (+) or failing (-) each of the following items:

1. Has concept of magic

- +: a. Spontaneously mentions magic.
 b. Says there is no such thing as magic; doesn't believe in magic.
 c. Says magic caused cat to really turn into bird; yes on Q3 and real on Q9 and no admission of not knowing what magic is.
 d. Gives examples of other types of magic, e.g., pulling rabbit out of hat.
 e. Asks if he can do it or spontaneously tries; asks if it will make a monster, etc. 1 7

Father-Child Interaction Study Coding Manual
Appendix D (continued)

2. Knows the original object remains in the situation in some form
 - +: Gives no indication of belief that cat merely went away or disappeared.
 - a. Says the cat is in the bag
 - b. Says the cat "must be around somewhere.
 - c. Knows the cat didn't go away physically to place out of E's reach.
 - d. Suggests or accepts notion of transformation.
3. Has at least some doubt that event is a real transformation or disembodiment phenomenon
 - +: Evidences suspicion or uncertainty about occurrence of real change
 - a. Says no to Q3 and does not suggest that toy disappeared
 - b. Says "There's a trick to that," or "I don't believe it," etc.
 - c. Tries to look inside or examine bag
 - d. Questions the extent of E's skill
4. Hypothesizes use of two animals in bag
 - +:
 - a. Says hidden object is still in bag or searches for it
 - b. Says E is just taking out one at a time
5. Resists magical explanation of apparent event
 - +: Says is not real magic at some point (and differentiates real from pretend magic, if says is pretend). Does not believe pretend magic is an actual change. Does not say bag is magic.
6. Suggests a physicalistic explanation after viewing turning of bag inside out
 - +:
 - a. Says E displaced object somewhere else, e.g., "You dumped it out someplace," or "You took it out and put it down beside you," or "I think you have it in your hand," etc.
 - b. Says the object is hidden in the bag, e.g., "The dog was under some black yarn," or "There must be a pocket."
 - c. Says there is a method which causes the apparent change, e.g., "You learned how to do it from a book," or "You're the only one who knows what to do," etc.
7. Believes a substitution has occurred after bag is turned inside out
 - +: Continued to maintain that two toys are somehow involved, and that one is being taken out of the bag at a time, even after viewing reversal of bag; may indicate this belief by searching for the cat.
8. Believes the phenomenon is not a real event
 - +:
 - a. Believes it is not a real transformation: says one did not turn into the other and does not suggest disappearance or request that E turn it into something else.

Father-Child Interaction Study Coding Manual
Appendix D (continued)

9. Believes he did not cause change when E held bag and S said magic words

+: says he didn't do real magic

10. Totally rejects magical cause of phenomenon

+: Does not even consider possibility of magical cause, including his effectance of change.

11. Denies any belief in magic in any context

+: Says no to Q15 and disavows magic throughout interview

-: Only magician can do magic -- "Are you a magician?"
Says no to Q15 but says magic exists under certain circumstances.
No, except maybe a genie, the kind that come in bottle.
Says D.K. whether there is magic or "don't think so".
Says D.K. whether event is magic

12. Disbelieves mystical cause of event with certainty

+: Does not even consider possibility of non-concrete, physical cause.
Does not believe change can be effected merely with words and gestures.

In addition, verbalized hypotheses about what happened to the cat were scored as follows:

1. It just happened, e.g., "The bag did it," "It's just magic."
2. The cat disappeared, "It's gone -- vanished."
3. Cat is somewhere else outside or inside of trailer, but E is not viewed as causal agent.
- 3a. y = "You said the words, or "You changed it", i.e. E viewed as the causal agent of the magic.
4. Cat turned into a bear or changed into a bear, e.g., "It grew," "It really changed into a bear."
5. The cat is in the bag, and E just took out another toy.
6. E put cat somewhere else in the trailer.
7. After the bag is turned inside out, insists cat is in the bag, but no mention of specified artifice.
8. Bag conceals artifice of some sort.

Father-Child Interaction Study Coding Manual
Appendix D (continued)

Piaget Computations

I. Performance

- A. Code the highest level passed by the child on each task.
- B. "Mean percent equivalents" are computed as follows:
 - 1. Compute the percentage of the total scale for each task which the highest level represents, e.g., a score of 6 on a 10-point scale would equal 60.0%; a score of 4 in a 4-point scale would equal 100.0%.
 - 2. Then take the mean of the percentages across all tasks, correct to one decimal place. This figure is coded as the "mean percent equivalents" of the highest levels earned on all tasks.

II. Verbalization

- A. The chart on the following page shows which of the seven categories (defined in the coding manual) each of the verbalizations (in the DeVries listing) is assigned to.
- B. The percentage of all the child's responses that are in each of the seven categories is computed to one decimal place and coded.
- C. The total number of relevant verbalizations of the child, i.e., the total number of responses in categories 2,3,5,6, and 7 is also added and coded.

Father-Child Interaction Study Coding Manual
Appendix D (continued)

Category Scheme for Piaget Verbalizations

	Guess- ing Game	Cons. of Mass	Class Inclu- sion	Cons. of Length	Family Ego- centrism	Cons. of Number	Sex Role Girl	Sex Role Boy
Performance								
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
Verbalization		Q1 Q2		PQ				
1		1 1	1	4 4		1	1	1
2		2 2	3	6 6		2	3	3
3		2 2	3	5 5		2	5	5
4		3 3	4	5 5		3	5	5
5		4 4	5	6 6		3	7	7
6		5 5	6	5 5		3	7	7
7		5 5	7	6 6		4		
8		6 6		7 7		5		
9		5 5				5		
10		6 6				6		
11		7 7				5		
12						6		
13						7		

THE UNIVERSITY OF MICHIGAN
School of Social Work

Father: _____

Child: _____

Interviewer: _____

Date: _____

INTERVIEW

I. Introduction

(Explain to father that you'd like to tape record interview--that way you can just take some brief notes and go back and listen to father's ideas in full at some future time,)

(Remember to take notes on nonverbal father-child interaction in right hand margin.)

I'd like to thank you for letting me come here today to talk with you. If you remember in the letter you received from _____ Elementary School, we stated that we're interested in understanding young boys and girls better. As you will soon see, we couldn't get very far without the help of parents.

First, I want to tell you a couple of things about what we are doing. One of the most important areas we're interested in is how father's and their children relate to each other. A lot of work has been done about how mothers relate to their children but we also believe that fathers are very important and therefore, we would like to discover more about the role that fathers play in the growth of their sons and daughters. We're interested in observing how fathers interact with their children when there are no other members of the family present, so it's important that _____ stay in the room with us for the entire interview. Another reason we're using the tape recorder is to help us in getting this kind of information.

The second important thing to remember in our discussion today is that there are no "correct" answers. We're really interested in what you do and how you feel about these topics. All information which is selected will be kept confidential, and we want you to feel that you do not have to reply to any question you feel is too personal.

At the end of the interview I'll be asking some questions about your view of this type of interview procedure and any suggestions you might have on doing things differently.

Before we get started I'd just like to ask a few questions about the family.

1. a) How old is _____? (Okay for inclusion
b) Date of Birth? _____ in study if born
between Dec. 1, 1967
& Nov. 30, 1968.)
2. a) How many brothers does he/she have? ---
b) What are their names?
their ages?
c) How many sisters does he/she have?
d) What are their names?
their ages?
3. What's your job now? (Probe for specific details, e.g.,
what kinds of things do you do? Tell me more about that,
etc.)

II. Father's Role in Child Rearing

1. As we mentioned in the letter we're interested in the role of the father in the family. There's lots of talk today about how parents should bring up their children. What do you think are the important things you, as a father, should do, to help your children grow up?
2. How do you think the way that fathers bring up their children has changed since you were a boy?
(Probe: how do you think the way you act with _____ compares to how your father acted with you?)

III. Cognitive Home Environment Scale (CHES).

- a. This first set of questions is to find out more about how children learn. Since children spend far more time at home than at school, it is important to get a better idea of the things they do outside of school.
- (b. Use the child's name in each question where a blank is indicated.)
- (c. When additional space is needed for recording the reply, use the reverse side of the paper indicating the number of the question and the sub-action being recorded.)
- (d. In probing, be as specific as possible. Specify answers.)

- _____ 1. When _____ starts school what grade do you expect _____ to receive in most subjects?
- (Circle one) A B+ B C+ C D+ F
- _____ 2. What grade would satisfy you?
- (Circle one) A B+ B C+ C D+ F
- _____ 3. a) What towns has _____ visited outside of _____?
- b) Why was one of the recent trips _____ taken?
- c) Who went with him/her?
- d) What did he/she do there?
- _____ 4. a) What newspaper and/or magazines do you have in the home at present?
- b) Who reads them?
- c) Does _____ usually look at them?
- (Circle one) Y N
- d) If so, which ones?
- _____ 5. a) What did you get _____ on his/her last birthday?
- b) for Christmas?
- c) What would you like to get him/her for his/her next birthday or Christmas?

- _____ 6.
- _____ 7. a) Does any member of your family have a library card?
- Y N
- b) How often is the card used? Once a week, once a month, less often than once a month?
- c) When was the last time?
- _____ 8. Are any of these things available for _____ to use at home at present? (Check if yes)
- | | |
|-------------------------|---------------------------|
| a) _____ paste | g) _____ ruler |
| b) _____ paper | h) _____ crayons |
| c) _____ paints | i) _____ playdough |
| d) _____ coloring books | j) _____ scissors |
| e) _____ paper cut-outs | k) _____ pencils |
| f) _____ books | l) _____ other (specific) |
- _____ 9. a) Do you have a dictionary in your home? Y N
- b) Who uses it?
- c) How often? Once a week, once a month, less often than once a month? (Circle one)
- _____ 10. a) Do you have an encyclopedia in your home?
- (Circle one) Y N
- b) Who uses it?
- c) How often? Once a week, once a month, less often than once a month? (Circle one)

- _____ 11. a) Did you teach _____ to write his/her name?
(Circle one) Y N
- b) To count? (Circle one) Y N
- c) To read? (Circle one) Y N
- d) To do any other things like that?
(Circle one) Y N
(If yes) What?
- e) All together how much time do you spend trying to help _____ learn?
- f) Do you play with _____?
(Circle one) Y N
- g) What do you play?
- _____ 12. a) When does _____ usually eat supper on week days?
- b) Who eats with him/her? (Please list)
- c) Who does most of the talking at the table?
- d) About what?
- _____ 13. a) At what times are you together as a family on weekdays?
- b) What are some of the things you do together at these times?
- c) How much time do you usually spend playing with _____ per day? _____, per week?
_____.

- _____ 14. a) What are some of the things your wife does with
_____ on weekdays?
- b) On weekends?
- _____ 15. a) Is there any adult outside of you (and your wife)
that _____ is particularly friendly with?
(Circle one) Y N
- b) How often does _____ see him/her?
- c) What does he/she do when he's/she's with this person?
- _____ 16. a) Do you read books to _____?
(Circle one) Y N
- b) If yes, what kind?
- c) How often do you read to him/her?
- d) How long does he/she listen?
- _____ 17. a) Do you suggest that _____ watch any
particular programs on television?
(Circle one) Y N
- b) If yes, which ones?
- _____ 18. a) Have you tried to teach _____ new
words?
(Circle one) Y N
- b) Why?
- c) (If yes) When did you teach him/her a new word last?
- d) What was the word?

- _____ 19. a) Are you concerned about the way _____ talks?
(Circle one) Y N
- b) If yes, in what way?
- c) Have you tried to get him/her to change?
(Circle one) Y N
- d) If so, how?
- _____ 20. How much schooling would you like _____ to receive?
- _____ 21. How much schooling do you expect _____ to receive?
- _____ 22. What is the least amount of education you think _____ must have?
- _____ 23. a) What kind of work do you think _____ will do when he/she grows up?
- b) What kind of work would you not like him/her to do?
- _____ 24. a) What are some of the things _____ does that you approve of?
- b) Does he/she know that you approve of them?
(Circle one) Y N
- c) How do you show that you approve of them?
- d) Did you praise or hug _____ in the last few days for something he/she did?
(Circle one) Y N
- e) If yes, what was it that he/she did?

- _____ 25. a) Do you want _____ to go to college?
(Circle one) Y N
- b) If yes, how much do you think it will cost to
send him/her to college? \$ _____/year.
- c) Have you made any plans for meeting this bill?
(Circle one) Y N
- d) If yes, what are some of these plans?

IV. T.V. Questions

There's been a lot of talk the last few years about the effects of television on children. Some people criticize the types of programs and say children watch too much t.v. Other people point to the good ways television can be used for children--programs like Sesame Street. We'd like to know your feelings about t.v.--things like:

1. What do you think about the kinds of children's programs there are?
2. How much t.v. do you think _____ should watch?
3. What kinds of t.v. programs would you like to see more of?
less of?

V. (Ask only if father has taught child something)

We talked before about your teaching _____ to
(write, read, count, etc.).

1. Can you describe the last time you taught _____ to
(read, etc.)? (Probe for situation, setting (formal vs. informal), others present, use of materials, etc.).
2. Is this typical of other times you've taught _____
to (read, etc.)?
3. (If not) How was it different? What do you usually do?
4. Are there any special times when you do this with him/her
(e.g., evenings, week-ends, holidays)?

VI. Child's Exploratory Behavior

1. What about _____'s efforts to learn things by himself/herself? Does _____ tend to explore and investigate things? Is he/she curious about how things work?
2. How often would you say _____ explores and investigates things?

_____ very frequently
_____ fairly often
_____ now and then
_____ rarely
3. Does _____ ask you questions about how things work?

Does he/she ask other people?
4. What does _____ do when he/she comes across something new or unusual?

VII. Torgoff's Scale

This next group of questions is about children in general, rather than specifically about how you and _____ are with each other. In the following statements you are asked what you think is the most appropriate age at which the average child may be expected to manage difficult situations. People have different opinions in such matters and there are no "correct" ages. There are no right or wrong answers. Your ideas are just as important and just as correct as anyone else's. We're interested in your opinions, so the best answer you can give is what you believe.

Remember that in these questions we want to know the age you think is appropriate for the average child. Try not to think of your own child or another particular child you know. Do not think of the age at which something actually did occur to your child or some other child. Don't base your answer on what you have seen other parents do, but respond only on the basis of what you believe the appropriate age should be for most children.

At what age do you think
Parents Should

Most Appropriate
Age

1. Begin to train their child to wash himself with no adult assistance. _____
2. Begin to teach their child not to fight but to first try to reason with other children. _____
3. Begin to allow their child to take full responsibility as a baby sitter, caring for a younger brother or sister, for an afternoon. _____
6. Begin to teach their child that crying is not the way to get what he wants _____
9. Begin to allow their child to ride a two-wheel bicycle in streets where there is only light traffic _____
10. Begin to allow their child to spend money the child earns in any way the child wants, even if it seems wasteful to the parents _____
11. Begin to teach their child not to use their fingers when eating. _____
15. Begin to make their child aware of the cost of the objects the child damages _____
19. Begin to train their children not to get "make believe" and "pretend" mixed up with real life _____
20. Begin to allow their child to remain at home alone during the day, if he wants to _____
21. Begin to teach their child not to "blow up" when the child is "boiling" inside _____
25. Begin to allow their child to cross busy streets where there is no traffic light or officer. _____
27. Begin to teach their child to share his toys. _____
28. Begin to allow their child to have friends of his own choosing even if the parents do not approve of his choice. _____
32. Begin to teach their child not to cry every time the child gets hurt _____
36. Begin to allow their child to light a burner on the stove without adult supervision _____
40. Begin to teach their child that it is wrong to cheat. _____
43. Begin to allow their child to go swimming with a friend his own age. _____

VIII. Family Characteristics

1. Does _____ take after anyone in the family?
(Probe: if answered in physical terms only): What about the way _____ acts? Does that remind you of someone in the family in particular?
2. Lots of times, fathers act differently towards different children. Would you say this is true of you with _____ as compared to _____, or _____ (name other sibs)?

IX. Education

1. In the letter you received we mentioned that we were interested in father's opinions about how a school should operate. What do you think of the educational system today?
2. Is it very different from when you went to school?
3. By and large, most fathers don't get involved in the activities of their child's school. Why do you think this is true for most fathers?
4. What about your own feelings on this matter? If you could get involved, which activities of _____ school do you think you'd like to be involved in?
5. How far did you get in school?
6. How old are you?
7. How far did your wife go in school?
8. Does your wife work?
(If yes) What does she do?

X. Puzzles

Now I'm going to give some puzzles to _____ because we're interested in seeing how children go about solving problems. You may help him/her or not as you wish. I'll sit over here (near child) so I can get a good view of what _____ is doing.

(Take notes on the following: (a) Where the father sits in relation to the child; (b) length of time child works on each of the puzzles before father begins to help either verbally or nonverbally; (c) child's nonverbal help-seeking behavior; (d) father's other nonverbal behavior.)

XI. Color-Form and Object-Sorting Tasks

Now I'll give _____ some other school-related tasks to try because the school is interested in discovering more about how children learn and think about things. Again, feel free to help or not as you wish.

(Present color-form and object-sorting tasks to child, making occasional notes on what he/she does but really using this opportunity to take notes on nonverbal father-child interactions).

XII. Reaction to Interview

Now we'd like to hear your view on this kind of interview experience.

1. How typical was _____'s behavior during this visit?
2. How typical do you think your behavior was?

XIII. Closing the Interview

1. Say something reassuring to father about child's behavior.

(If child was pleasant, easy to be with) _____
seems to be a sharp kid. I enjoyed this visit with him.

(If child was restless and difficult) This age children often
get restless. It's quite normal behavior for four-year olds
in a situation like this.

(If child is very quiet) _____'s behavior during
this visit was normal, some children are shy with strangers
in the house.

2. Thank you for cooperating with us and providing useful information for our study.

Someone may get in touch with you if we decide to do some
more work with children to add to the results of the study.

We'll get in touch with you to let you know how the study
comes out. We'll be giving the school the general information
we find out about all the children.

Child's Name: _____ Date: _____

No. _____ Coder: _____

Revised Coding Categories***Related to
Nurturance:

		0-15	15-30	30-45	45-60	Total ⁺⁺
Reinforcing	1. Verbal reinforcement (1)**					
	2. Physical reinforcement (2)					
Influencing and limit Setting Behavior Strategies	3. Consulting (4)					
	4. Ordering with explanation (5)					
	11. Preventive warning & reminding (11)					
	12. Bribing (12)					
	13. Other psychological manipu- (14) lation					
	24. Preventive manipulation of (22) environment					
Responding to explicit Needs of Child	26. Correcting (in neutral form)(24)					
	14. Fully meeting explicit needs (15)					
	15. Partially meeting explicit needs(16)					
Relating to Implicit Needs	16. Not meeting explicit needs, i.e. refusing; continuing to talk (17)					
	17. Initiates & engages child in conversation (18a)					
	18. Stops to listen when child talks(18b)					
	19. Continues talking when child talks (18c)					
Expressing Warmth	20. Meeting other implicit needs(18d)					
	21. Communicating affection (19)					
Initiating Motivating Behaviors	22. Sharing activities (20)					
	23. Requesting (21)					
	25. Asking information (23)					
Related to Restrictiveness						
Restricting Behaviors	5. Ordering Non-aversively without explanation (6b)					
	6. Ordering Aversively without explanation (6a)					
	7. Aversive Verbal Stimuli - Threatening (7a)					
	8. Other aversive verbal stimuli(7b,c)					
	9. Aversive non-verbal stimuli (8)					
	10. Physically stopping undesirable behavior in non-averse fashion(10)					

*Not included in nurturance score

**# to right of item refers to old coding system.

***Categories described in detail in Coding Manual for Categories of Father-Child Inter-

++Total = 30 consecutive minutes with most interaction

action

009530

TM

Second Interview
Father-Child Interaction Project

General Introduction

1. Thank father for letting us come back to do the second interview.
2. Explain reasons for doing a second interview:
 - a) At the end of the first interview, we asked about how typical your behavior and _____'s behavior were. Sometimes children behave quite differently on different days, depending on things like the time of day and how tired they were. We wanted to do this second interview to see what differences there might be in the way children act;
 - b) there are some other areas of child rearing we're interested in getting fathers' opinions about; and
 - c) We don't have time or money to ask these questions of all fathers in our sample, so we've picked some at random and asked if they would help us out.
3. Mention that we're using the tape recorder and that _____ must stay in the room again for the same reasons as before (i.e. simplify note-taking, record interaction).
4. Either at this time or at the end (if that seems more comfortable) give the father the check and tell him we appreciate his giving so much of his time to this project.

Tm 009536

I. Activities, Freedom to Explore, etc.

In this first set of questions, we'd like to find out some more about your child's activities in both play and learning situations. As you will see, we are interested in what _____ does when he/she is by himself/herself, with peers, and with various members of the family.

1) What kinds of activities do you encourage _____ to do?

2) a) Weather permitting, who usually decides if _____ will play inside or outside? Does _____ ever decide this on his/her own?

b) If _____ and a friend are going to be playing together who usually decides whose house they will be playing at? Does _____ ever decide this on his/her own?

3) a) Does _____ like to watch you when you work around the house, the yard, or on the car?

(circle one) Y N

b) If yes, can you give some examples of the things you do that _____ is interested in?

c) What do you usually do if he/she wants to watch you?

d) What do you usually do if he/she wants to help you?

4) a) Most children enjoy some kind of play involving water, dirt, mud, etc. Does _____ enjoy any activities like that?

(circle one) Y N

b) Do you ever say "no" to _____ when he/she wants to play with these things?

(circle one) Y N

If yes, why?

5) a) When _____ plays outside, do you have any special rules that he/she must obey (e.g., not crossing street, staying in front of house, away from mud, etc.)?

b) When _____ plays inside, do you have any special rules that he/she must obey (e.g., no jumping on sofa, no water play, no touching stereo, etc.)?

6) a) What about the furniture. Was furniture (other than that in the child's bedroom) obtained with children in mind?

b) Is there anything in the way of furniture or decoration that you decided to not have in the home because of the presence of children?

7) a) Does _____ have any favorite foods?
(talk about child's likes and dislikes in food)

(circle one) Y N

What?

b) Does he/she ever ask that these foods be included in the meals? (does child have a say in menu planning or what foods are served?)

(circle one) Y N

c) Are there any foods that _____ dislikes?

(circle one) Y N

What?

d) What happens when these are served at a meal?
(forced to eat?)

(circle one) Y N

Are special substitutes offered?

- 8) a) Does the family ever watch television together?
(circle one) Y N
- b) If yes, who is usually there?
- c) Who decides what program the family will watch?
- d) What happens when _____ wants to watch one program and you want to watch another at the same time?
- 9) a) How much time does _____ spend playing alone?
- b) Do you think he/she plays well alone?
- c) How much time does _____ spend playing with other children (apart from siblings)?
- d) Who are these others?
- e) Do you think he/she plays well with others?
- f) If there's a problem with another child, can _____ handle it alone?
- (circle one) Y N
- If yes, how does _____ handle it?
- If no, what does he/she do?
- 10) a) Could you describe what a typical weekday would be like for _____?
- b) Could you describe what a typical day on the week-end would be like for _____?

II. Introduction to PARI

In this next set of questions, I'll be reading some statements and I want you to tell me if you agree strongly or mildly, or disagree strongly or mildly with what I've read. Remember, there are no right or wrong answers to these questions; we're just interested in your opinions.

	<u>Agree</u>	<u>Disagree</u>
1. A child who is "on the go" all the time will most likely be happy.	A a	d D
2. Children should be more considerate of their fathers since their fathers suffer so much for them.	A a	d D
3. Children will get on any man's nerves if he has to be with them all day .	A a	d D
4. Sex is one of the greatest problems to be contended with in all children.	A a	d D
5. Some children are just so bad they must be taught to fear adults for their own good.	A a	d D
6. Children pester you with all their little upsets if you aren't careful from the first.	A a	d D
7. Children would be happier and better behaved if parents would show an interest in their affairs.	A a	d D
8. Children should never learn things outside the home which make them doubt their parents' ideas.	A a	d D
9. Fathers very often feel that they can't stand their children a moment longer.	A a	d D
10. Children are actually happier under strict training.	A a	d D
11. The sooner a child learns to walk the better he is trained.	A a	d D
12. Parents must earn the respect of their children by the way they act.	A a	d D
13. A child will be grateful later on for strict training.	A a	d D
14. A father should do his best to avoid any disappointment for his child.	A a	d D
15. There is usually something wrong with a child who asks a lot of questions about sex.	A a	d D
16. Parents should know better than to allow their children to be exposed to difficult situations.	A a	d D
17. Children who are held to firm rules grow up to be the best adults.	A a	d D

	<u>Agree</u>	<u>Disagree</u>
18. A good father will find enough social life within the family.	A a	d D
19. One of the worst things about having children is a man feels that he can't get out.	A a	d D
20. Fathers sacrifice almost all their own fun for their children.	A a	d D
21. A child's ideas should be seriously considered in making family decisions.	A a	d D
22. The trouble with giving attention to children's problems is they usually just make up a lot of stories to keep you interested.	A a	d D
23. There is no good excuse for a child hitting another child.	A a	d D
24. Most children are toilet trained by 15 months of age.	A a	d D
25. Parents who are interested in hearing about their children's parties, dates, and fun help them grow up right.	A a	d D
26. Most children should have more discipline.	A a	d D
27. A father has a right to know everything going on in his child's life because his child is part of him.	A a	d D
28. Having children gives a man the feeling that his wings have been clipped.	A a	d D
29. When you do things together, children feel close to you and can talk easier.	A a	d D
30. Few women realize that a father needs some fun in life too.	A a	d D
31. The child should not question the thinking of his parents.	A a	d D
32. Strict discipline develops a fine character.	A a	d D
33. A child soon learns that there is no greater wisdom than that of his parents.	A a	d D
34. When a child is in trouble he ought to know he won't be punished for talking about it with his parents	A a	d D
35. A child should be taught to avoid fighting - no matter what happens.	A a	d D
36. A father should make it his business to know everything his children are thinking.	A a	d D

III. Managing Typical Problem Situations

Now let's turn to the next part of the interview. We have found that fathers frequently want to know what they should do at certain times in order to get their child to do something different from what he is doing. You know, such things as "what I do when my child gets upset about something" or "when I want him/her to come to supper." Before we can say which are the best ways to handle such situations it is necessary to find out what methods fathers have been using all along and why they use these methods. It is just this kind of thing that we are studying -- what does the father do in ordinary, everyday situations to get the child to do what the father wants, what kinds of things work, and what kinds of things don't work.

First, I have here a number of these ordinary, everyday situations where fathers sometimes feel it necessary to change the child's behavior. I am going to ask you to tell me about your experience with _____ in these situations, to describe what he/she did and how you handled it.

(note to interviewers: the questions a), b), c), etc. are to indicate the types of probes you might use if the father has difficulty answering the main question. Use them sparingly so that the father doesn't become uncomfortable.)

CAN YOU THINK OF THE MOST RECENT TIME THAT:

- 1) You wanted _____ to share toys, candy, etc. with another child.
 - a) What was the particular item(s) involved, e.g., toys, food, etc.?
 - b) Who was the other child (children) involved? Does this tend to happen more often with siblings or with friends?
 - c) What did you do to try to get _____ to change his/her behavior?
 - d) Did you feel you were successful in getting _____ to change his/her behavior in this instance?
- 2) _____ was doing something where you thought he/she might get hurt.
 - a) What was it that he/she was doing?
 - b) What did you do to try to get _____ to change his/her behavior?

- c) Did you feel you were successful in getting _____
to change his/her behavior in this instance?
- 3) _____ was afraid of something that you didn't
want him/her to be afraid of.
- a) What was it that he/she was afraid of?
- b) What did you do to help _____ overcome his/her fear?
- c) Did you feel you were successful in getting _____
to no longer be afraid of this?
- 4) You wanted _____ to do something because you felt
he/she was old enough to do it himself/herself.
- a) What was it that you felt _____ was old enough to do?
- b) What did you do to get him/her to do this by himself/herself?
- c) Did you feel you were successful in getting _____
to change his/her behavior in this instance?
- 5) You wanted _____ to go to bed and he/she didn't
want to.
- a) Was this on a regular week night (or weekend) or did
_____ want to stay up because something special
was happening?
- b) What did you do to finally get _____ to go to bed?
- c) Did you feel you were successful in handling the situation?
- d) Have you handled this problem differently at other times?
What method seems to work best?

- 6) _____ was doing something at the dinner table and you wanted him/her to stop.
- a) What was it that _____ was doing?
 - b) Do incidents at the dinner table usually involve _____ alone or are other siblings often involved (e.g., two children fighting at the table?)
 - c) What did you do to get _____ to stop doing this?
 - d) Did you feel you were successful in getting _____ to change his/her behavior in this instance?
- 7) a) Is _____ responsible for putting away his/her own toys?
- (circle one) Y N
- b) If yes, what do you do when you want _____ to put away his/her toys and he/she doesn't want to?
 - c) Do you feel this method of handling the situation is successful?
- 8) a) Is _____ responsible for hanging up his/her own clothes?
- (circle one) Y N
- b) If yes, what do you do when you want _____ to hang up his/her clothes and he/she doesn't want to?
 - c) Do you feel this method of handling the situation is successful?
- 9) a) People often think of children as liking to get into a lot of mischief. Would you say this is true of _____?
- b) If yes, what kinds of mischief?

IV. Nurturance, Socio-Emotional

In this last group of questions, we're interested in how fathers and their children express their feelings about things and about one another.

- 1) a) When _____ is upset or angry about something, how does he/she express this?

b) Can you describe the last time this happened involving you?

c) How did you handle it?
- 2) a) Would you say that you are affectionate with _____?
(circle one) Y N

b) How do you show affection with him/her?
- 3) a) Would you say that _____ is an affectionate child?
(circle one) Y N

b) How does he/she show affection with you?

V. Puzzles

- a) Re-do previous puzzles. "Remember these puzzles that we did last time? Let's try them again". (Repeat that father free to help or not as he chooses).
- b) Keys of Learning - tell child to match key color with plastic form; let child insert and turn key; help child lift shape out of box if he/she has trouble (i.e., don't let child get frustrated with this task - make it a success experience for all children).

Description of Piaget Tests
Father-Child Study

1. Guessing Game:

A game of hide-the-penny is used to assess social role taking. First the tester puts his/her hands behind his/her back and the child must guess which hand the penny is in. On the first six trials the child has a success experience (E has a penny in each hand), then four failure trials (E has a penny in neither hand), then two more success trials. The child's guessing strategy and reactions to success and failure are recorded. Then the child hides the penny for seven trials while the tester tries not to guess correctly. The child's hiding strategy is noted.

2. Conservation of Mass:

Uses four balls of pink fondant, two less than two tablespoons, two a bit more than one tablespoon. In both tests two unequal balls are presented and the shape of the smaller one is then changed. In the first test the smaller ball is rolled into a "hot dog" shape which is longer than the larger ball; in the second test the smaller ball is flattened into a "pancake" shape which is wider than the larger ball. Following the transformation in each test, the child then chooses whether the larger ball or the transformed smaller ball has more to eat.

3. Class Inclusion:

Four chocolate M & M's and one mint candy are presented as "chocolate candy" and "mint candy". The child is asked to pick the most, either "all the chocolate or all the candy". A series of questions aimed at helping the child distinguish between "all" versus "some" are asked, and then the child is again asked to choose which is more, "all the chocolate or all the candy".

4. Length Conservation:

Series of trials using different color gum sticks cut into two lengths, 4" and 4½", and placed parallel to each other, with either the ends nearest the child or farthest from the child aligned. The shorter stick is then moved toward the child or away from the child so that one end protrudes past the longer gum stick and the child is asked to choose the gum stick with more to chew. In a third task the longer gum stick is bent in an arc whose end points are closer than the shorter gum stick and the child must choose the longer one with more to chew. The final task is designed to elicit measuring behavior by asking the child to choose the longer of two gum sticks which have been randomly (neither parallel nor aligned in any way) placed before him/her.

5. Family Egocentrism:

This test has two parts. In the first part, S is asked how many sex siblings he/she has and then how many same sex siblings one of those siblings has. This procedure is repeated with questions about opposite sex siblings.

In the second part, the tester holds a doll in his/her right hand, facing opposite to S, and asks if the doll is in "my right hand or my left hand"; the tester then switches hands and repeats the question. Finally the tester asks the child to show his/her own right hand.

6. Conservation of Number:

Involves using two plates of M & M's, one containing one more M & M than the other (5 vs. 6). First they are lined up in one-to-one correspondence so that the larger number form a longer line. Then the larger number are compressed to form a shorter line than the smaller number and the child is asked to choose the plate with more M & M's to eat. A final task, in which the child is asked to show how he/she knows which plate has more, is designed to elicit counting and the child is then asked once more to select the plate with more M & M's.

7. Sex Role Constancy:

Involves a series of four pictures: a girl; a boy; a figure with a dress and short hair; a figure with pants and long hair. The child is asked whether a girl would be a boy after various behavioral (playing with boys' toys) and physical (wearing boys' clothes, having hair cut short) transformations; this is followed with questions on whether a boy would be a girl following comparable transformations. Finally, the child is asked whether a real boy or girl could become a child of the opposite sex.

8. Magic Interview:

Magic bag with cat in one pocket, bear in other. The tester performs a magical ritual (words and motions), makes the cat "change" into a bear and then asks the child what happened. The concept of magic is not offered as an explanation by the tester until half-way through the test in order to give the child an opportunity to spontaneously mention magic. The child is then asked if he/she can make the animal change and is encouraged to try the magic bag. The words and gestures used by the child are noted. The child is asked if there is such a thing as magic, and if it is pretend or real magic.

BIGOT SCORE SHEET

APPENDIX F

Child's Name: _____

Date: _____

Coder: _____

	Guess- ing Game	Cons. of Mass	Class Inclu- sion	Cons. of Length	Family Ego- centrism	Cons. of Number	Sex Role Girl	Sex Role Boy	Magi Inter- view
Performance									
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
Verbalization		Q1	Q2		PQ				
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									

009530

TM

Appendix G- Modified version of
DeVries' Piagetian Tasks

APPENDIX G

NAME: _____

DATE: _____

FAMILY EGOCENTRISM TASK

If S is a boy:

1. How many brothers do you have?
2. Tell me the name of one. How many brothers does _____ have?
How many sisters do you have?
Tell me the name of one.
Does _____ have any brothers?

(Ascertain whether S has a sibling younger than himself.)

Has _____ Hasn't _____

If S is a girl:

1. How many sisters do you have?
2. Tell me the name of one. How many sisters does _____ have?
How many brothers do you have?
Tell me the name of one.
Does _____ have any sisters?

(Ascertain whether S has a sibling younger than herself.)

Has _____ Hasn't _____

3. Both boys and girls: (Hold doll in right hand and face opposite to S.)
Have I got the doll in my right hand or in my left hand?
4. (Place doll in left hand.) Have I got the doll in my left hand
or in my right hand?
5. Show me your right hand.

TM 009530

NAME: _____

DATE: _____

SEX ROLE CONSTANCY

A. Girl

(0) Is this (girl picture) a boy or a girl? Yes, it's a girl, isn't it?

1. If this child (point to girl picture) really wants to be a boy, can she?

Yes: Would the child be a real boy then? Yes No

What would it be:

If girl: Why would it still be a girl?

No: Why not?

2. If this child plays with guns and does boy things, what would it be? Would it be a boy or a girl?

Boy: Would the child be a real boy then? Yes No

What would it be?

If girl: Why would it still be girl?

Girl: Why would it still be a girl?

3a. If this child's (point to girl) hair were cut short like this (show picture of girl with haircut), what would it (point to girl) be? Would it be a boy or a girl?

Boy: Would the child be a real boy then? Yes No

What would it be?

If girl: Why would it still be a girl?

Girl: Why would it still be a girl?

3b. If this child (point to girl picture) put on boy clothes like this (show picture of girl in boy's clothes), what would it (point to girl) be? Would it be a boy or a girl?

Boy: Would the child be a real boy then? Yes No

What would it be?

If girl: Why would it still be a girl?

Girl: Why would it still be a girl? 153

4. If this child's (point to girl) hair were cut like this (show girl with haircut), and the child wore boy's clothes like this (place picture of boy on top of haircut picture), what would the child (point to girl) be? Would it be a boy or a girl?

Boy: Would the child be a real boy then? Yes No

What would it be?

If girl: Why would it still be a girl?

Girl: Why would it still be a girl?

5. If this child (point to girl) had hair and clothes like a boy's (point to boy) and played with guns and did boy things and acted like a boy, what would the child (point to girl) be? Would it be a boy or a girl?

Boy: Would the child be a real boy then? Yes No

What would it be?

If girl: Why would it still be a girl?

Girl: Why would it still be a girl?

6. Could that really happen? Yes No Why not?

If a real girl cut off her hair like a boy and put on boy clothes and played with guns and acted like a boy, would the real girl be a real boy?

No: Why not? Why does a girl have to stay a girl?

Yes: Does that happen sometimes?

No: Why Not?

Yes: Did you ever know a girl who changed to a boy?

B. Boy

(0) Is this (boy picture) a girl or a boy? Yes, it's a boy, isn't it?

1. If this child (point to boy picture) really wants to be a girl, can he?

Yes: Would the child be a real girl then? Yes No

What would it be?

If boy: Why would it still be a boy?

No: Why not?

2. If this child plays with dolls and does girl things, what would it be?

Would it be a girl or a boy?

Girl: Would the child be a real girl then? Yes No

What would it be?

If boy: Why would it still be a boy?

Boy: Why would it still be a boy?

3a. If this child's (point to boy) hair grows long like this (show picture of boy with long hair), what would it (point to boy) be?

Would it be a girl or a boy?

Girl: Would the child be a real girl then? Yes No

What would it be?

If boy: Why would it still be a boy?

Boy: Why would it still be a boy?

3b. If this child (point to boy) put on girl clothes like this (show picture of boy in girl's clothes), what would it (point to boy) be?

Would it be a girl or a boy?

Girl: Would the child be a real girl then? Yes No

What would it be?

If boy: Why would it still be a boy?

Boy: Why would it still be a boy?

4. If this child's (point to boy) hair grows long like this (show boy with long hair), and the child wore girl's clothes like this (place picture of girl on top of long hair picture), what would the child (point to boy) be? Would it be a girl or a boy?

Girl: Would the child be a real girl then? Yes No

What would it be?

If boy: Why would it still be a boy?

Boy: Why would it still be a boy?

5. If this child (point to boy) had hair and clothes like a girl's (point to girl) and played with dolls and did girl things and acted like a girl, what would the child (point to boy) be? Would it be a girl or a boy?

Girl: Would the child be a real girl then? Yes No

What would it be?

If boy: Why would it still be a boy?

Boy: Why would it still be a boy?

6. Could that really happen? Yes No Why not?

If a real boy grows his hair long like a girl and put on girl's clothes and played with dolls and acted like a girl, would the real boy be a real girl?

No: Why not? Why does a boy have to stay a boy?

Yes: Does that happen sometimes?

No: Why Not?

Yes: Did you ever know a girl who change to a boy?

NAME: _____

DATE: _____

MAGIC INTERVIEW

1. (Bear concealed in right compartment.) Now this is a special bag that makes funny things happen. See this cat? Take the cat in your hand and put it in the bag. Go ahead; put it in the bag. What do you think will happen to the cat? Abacadabra Allakazam (make circular gestures).
2. (Change) Look what happened. (Show the bear) Look at that. Where is the cat? What happened to the cat?
3. Did the little cat really turn into a bear? Yes No
4. Is it still the same; is the cat inside the bear?
5. How did it happen then? What made it turn into a bear?
6. Let's put the bear back into the bag. Abacadabra Allakazam (gesture).
7. How did it happen? How did it work?
8. Was it magic? Yes No Uncertain
9. (If yes) Was it pretend or real magic?
10. Now I'll put the cat back in the bag. There, it's the bear again. Abacadabra Allakazam.
11. Now can you do it? Change the bear back into a cat. Yes No
How is that?
12. Go ahead and try--make it change into a cat and you'll get a prize of candy over there.

Procedure followed by child:

(If gestures)

It's hard isn't it You have to know something special.

13. Do you want to try again. I will help you this time.
14. Is there any real magic? _____

SIBLING EGOCENTRISM

1. How many brothers do you have? _____

What are their names?

2. How many brothers does _____ have? (Use name of S's brother).

3. How many sisters do you have? _____

What are their names?

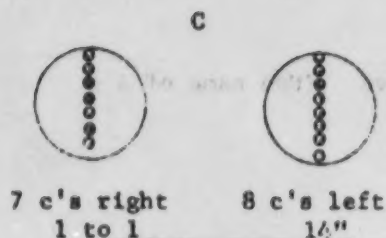
4. How many sisters does _____ have? (Use name of S's sister).

NAME: _____

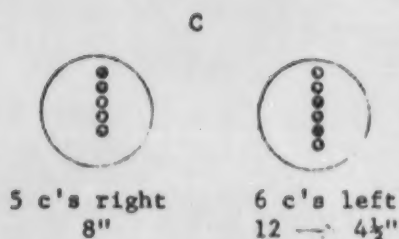
DATE: _____

CONSERVATION OF NUMBER

Pretest



I have some candy on these plates. One plate has more than the other plate. In a minute I am going to ask you to pick the plate that has more candy to eat. If you can show me the plate that has more to eat, you can have it to keep or to eat. But if you don't pick the plate that has more candy to eat, you won't get any candy this time but you will get another chance later. Now, look at both of them and show me the plate that has more candy to eat.

1. Test if S conserves when 6 constricted

I have more candy on these plates. Which has more to eat?

5(8'')

circle:

6(12'')

That's right. Now in a minute when I say so, you may pick the plate with the most candy--the one that has more to eat--to keep or to eat. If you don't pick the one that has more candy to eat, you won't get any candy this time, but you'll get another chance to pick some later. Before you pick, I put them like this (12'' -> 4½''). Now look at both plates, and if you can show me the plate that has more candy to eat, you may have it.

6(4½)

circle:

5(8'')

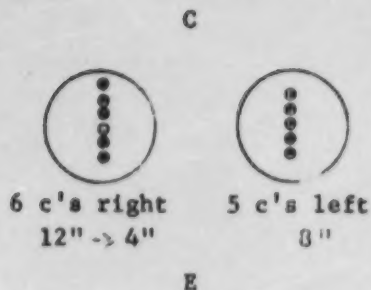
How did you know that was more?

Which plate had more before?

2. Elicit Counting--Counting as an Aid to Conservation

I have some candy on these plates.
Which has more to eat?

6(12")



That's right. Now in a minute when I say so, you may pick the plate with the most candy. The one that has more to eat--to keep or to eat. If you don't pick the one that has more candy to eat, you won't get any candy this time, but you'll get another chance to pick some later (6 → 4"). Now, if you can, show me the one that has more candy to eat, you may have it.

6(4")

circle:

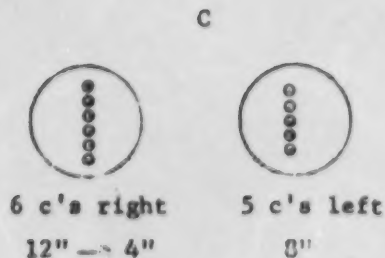
5(8")

How could you tell which had more to eat?

If S Did Not Count: If I thought this one (not selected one) had more to it, how could you show me it doesn't?

If S still not counting: Could you count them?

So which has more to eat?



3. For S 's Who Fail 1 & 2

See there are 1, 2...6 here, and 1,2...5 here. This one has more. Now watch. I am going to put them like this (6.12" → 4"). Now look at both plates and show me the plate that has more candy to eat.

6 - 4"

circle:

5 - 8"

How did you know that had more to eat?

Which plate had more before?

NAME: _____

DATE: _____

CONSERVATION OF MASS

Materials: four balls of soft pink fondant, two a little less than two tablespoonsful, and two a little more than one tablespoonful.

1. a. Look, here are two balls of candy. (Present two unequal balls, smaller to child's left.) Can you see that one has more to eat than the other? Which one has more? Yes, that has more to eat. (E begins to roll smaller ball into 4" hot dog shape as he talks.) Now in a minute when I say so, if you can pick the one that has more to eat, you may have it. If you don't pick the one with more to eat, you won't get any candy this time, but you'll have another chance to get some later. (Place HD next to larger ball.) Which one has more to eat?

Ball _____

Hot Dog

How do you know that's more to eat?

Which is bigger?

b. Limit Testing

*If child says ball has more: Now watch. I'm rolling this one longer (roll out HD to about 8"). Which has more to eat?

Ball

Hot Dog

Which had more before I rolled it?

Ball

Hot Dog

Did this (point to Hot Dog) really change? Did it really get to be more candy to eat?

If no: Why not?

If yes: How did that happen?

O.K. You take the one with more candy to eat.

Ball

Hot Dog

Let child take choice.

2. Here are two more balls of candy. (Present two unequal balls, smaller to child's right.) Which one has more to eat? Yes, that has more. (E begins to press smaller ball into pancake shape about 4" in diameter, as he talks.) In a minute when I say so, if you can pick the one that has more to eat, you may have it. If you don't pick the one with more to eat, you won't get any candy this time, but you'll have another chance to get some later. I put this one like this. Which has more to eat?

Ball

Pancake

How do you know that's more to eat?

Which is bigger?

Which had more to eat before I flattened it?

Ball

Pancake

Did this (point to pancake) really get to be more candy to eat?

If no: Why not?

If yes: How does that happen?

3. *If conserves: What could I do to make this (point to pancake) have more candy to eat than that one?

*If child says add more: If I didn't have any more to add to it, is there anything I could do to this (pancake) to make it have more than this one?

*If child says nothing will make PC have more: Why is that?

4. You take the one with more candy to eat.

Ball

Pancake

NAME: _____

DATE: _____

CLASS INCLUSION

1. Look, here is some candy. Some are chocolate candy. One is mint candy. Are these chocolate candy (pointing to M & M's)? Is this mint candy (pointing)? Now, I'm going to have you pick some, and you must pick the most you can. If you don't pick what has more to eat, you won't get any candy this time.
 - a. Now, pick either all the chocolate or all the candy.
(Circle one) Chocolate Candy
 - b. Why did you pick that?
 - c. Which is there more of, chocolate or candy?
(Circle one) Chocolate Candy
 - d. Why is that?
2.

a. <u>Put all the candy in my hand.</u>	Correct	Incorrect
b. <u>Put all the chocolate in my hand.</u>	Correct	Incorrect
3.

a. <u>Is all the candy chocolate?</u>	N	Y
b. <u>Is all the candy mint?</u>	N	Y
c. <u>Is some of the candy chocolate?</u>	Y	N
d. <u>Is some of the candy mint?</u>	Y	N
4. Now, listen carefully
 - a. If you took some of the chocolate away, would there be any chocolate left?
Y N
 - b. If you took all of the chocolate away, would there be any chocolate left?
N Y

c. If you took all of the chocolate away, would there be any candy left?

Y N

d. If you took all of the candy away, would there be any chocolate left?

N Y

5. Then is there more candy or more chocolate? Why do you say there would be more _____?

6. What kind of candy is here?

7. You take either all the chocolate or all the candy--whichever has more to eat--and put it in your sack.

(Circle one)

Chocolate

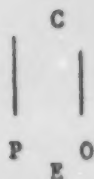
Candy

NAME: _____

DATE: _____

LENGTH CONSERVATION

PQA. Here are two gum sticks (4" orange and 4½" purple, placed parallel to child's line of sight, with ends farthest from child aligned). Show me the bigger and longer one.



_____ Correct purple

_____ Incorrect orange



Now, when I say so, you can pick the bigger one that has more gum to chew. If you don't pick the one with more to chew, you won't get any this time. You'll get another chance to get gum later. Now, before you pick, I put them like this (place card over aligned ends and push protruding longer stick into alignment with shorter stick). Is one gum stick longer now? Show me the longer one with more gum to chew.

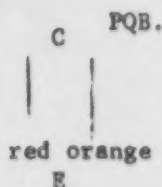
_____ Correct purple

_____ Incorrect orange

_____ Both same

How did you know that had more to chew?

Which one had more to chew before I covered them?



PQB. Here are two more gum sticks (4" red and 4½" orange, placed parallel to child's line of sight, with ends closest to child aligned). Show me the bigger one.

_____ Correct orange

_____ Incorrect red



Now, when I say so, you can pick the longer one that has more gum to chew. If you don't pick the one with more to chew, you won't get any this time. You'll get another chance to get gum later. Now, before you pick, I put them like this (place card over aligned ends and push protruding longer stick into alignment with shorter stick). Is one gum stick longer now? Show me the longer one with more gum to chew.

- _____ Correct orange
- _____ Incorrect red
- _____ Both Same

How did you know that had more to chew?

Which one had more to chew before I covered them?

1. Here are two gum sticks (4" orange and 4½" purple, placed parallel to child's line of sight, with ends farthest from child aligned). One is bigger than the other--one is longer. You don't need to show me, but can you see that one is bigger than the other?

C
|
O P
E

Yes No

- When I say so, you can pick the bigger one to keep or to eat. If you don't pick the biggest one, you won't get gum this time. You'll get another chance to get gum later. Now, before you pick, I put them like this (place finger in center of orange stick and slide it toward child so that it extends about ½" beyond other stick).

C
^
|
O P
E

- a. Now look at them (pause). If you can show me the biggest one. I'll give it to you to eat after while.

_____ Picks longer purple: Ask following and then move to Q3.

_____ Picks shorter orange: Ask the following and then move to Q2.

How could you tell it was bigger?

* If child says, "I looked at it, I saw this was biggest," or similar ambiguous response which could refer to remembrance of which was bigger prior to advance, ask: When did you look (see it)?

*If child says, "I measured," or demonstrates by measuring, replace in advanced position and ask: But how can you tell when it's like this?

b. Which was bigger before?

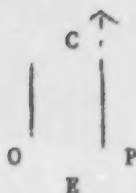
_____ Correct purple

_____ Incorrect orange

* IF CORRECT, Move to Q. 3.

2. (Give this question only if picked shorter orange on Q. 1.)

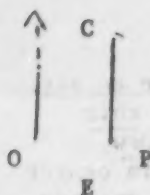
(If pieces have been moved so that orange stick is not advanced toward child, replace them in this position.)



You told me this was the biggest one (point to orange)
 (Place finger in center of purple stick and move it toward child so that it extends about $\frac{1}{2}$ " beyond other stick.)
Now show me the big one.

_____ Picks longer purple stick: move to 2a

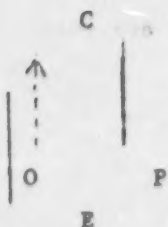
_____ Picks shorter orange stick: move to 2b



a. If longer purple stick is now chosen: (Replace sticks in original position, with ends farthest from child aligned, and then move orange stick toward child so that it extends $\frac{1}{2}$ " past purple.) Before, you said this (as move orange) was biggest. Now (move purple stick toward child so that it extends $\frac{1}{2}$ " beyond other stick) you say this (point to purple) is bigger. Does it really change? Does this get to be more gum to chew?

If yes: How does that happen?

* Move to Q. 3.



b. If shorter orange stick is again chosen: (Move orange stick toward child so that ends of the stick farthest from child are aligned.) You said this (point to orange) was biggest. Is it biggest now?

Does it really change? Does this get to be more gum to chew?

Move to Q. 3.

3. (Give this Q to all Ss.)

C Here are two more sticks of gum. (Take 4" purple and
R 4 1/2" red. Place them parallel to child's line of
E P sight, with ends closest to child aligned.) One is
 bigger than the other; one is longer. You don't need
 to show me, but can you see that one is bigger than
 the other?

Yes

No

C When I say so, you can pick the bigger one to keep or to
R eat. If you don't pick the biggest one, you won't get
E P gum this time. You'll get another chance to get gum later.
 Now, before you pick, I put them like this (Place finger
 in center of purple stick and move it away from child so
 that it extends about 1/2" beyond the pink stick.)

- a. Now look at them (pause). If you can show me the
biggest one, I'll give it to you to eat after while.

_____ Picks longer red stick: move to 3c after
asking the following Q.

_____ Picks shorter purple stick; move to Q4 after
asking the following Q.

How could you tell it was bigger?

* If child says, "I looked at it, I saw this was biggest,"
or similar ambiguous response which could refer to
remembrance of which was bigger prior to advance, ask:
When did you look (see it)?

* If child says, "I measured," or demonstrates by
measuring, replace in advanced position and ask: But
how can you tell when it's like this?

- b. Which was bigger before I moved it?

_____ Correct red

_____ Incorrect purple

If correct on 1 & 3:

C A c. Does it change when I move it? Why (not)?
 (Point to red stick.) You said this is biggest.
 (Place finger in center of short purple and move
 it toward child so that the end nearest the child
 extends $\frac{1}{2}$ " beyond other stick.)
 R P Now show me the big one.
 E

_____ Picks longer red stick: move to Q5

_____ Picks shorter purple stick: move to 3d.

C d. (Replace sticks in original position, with ends closest
 to child aligned.) Before (move purple away from child
 so it extends $\frac{1}{2}$ " beyond red) you said this (point to
 red) was biggest. Now (move purple toward child so it
 extends $\frac{1}{2}$ " beyond red at end closest to child) you say
 R P this (point to purple) is biggest. Does it change?
 E Does it get to be more gum to chew?

How does that happen?

C 4. (Give only if picked shorter purple on Q3.)
 (If pieces have been moved so that purple stick is not
 advanced away from child, replace in this position.) You
 told me this (point to purple) was the biggest one. (Place
 finger in center of short purple stick and move it toward
 child so that it extends $\frac{1}{2}$ " beyond other stick.)
 R P
 E Now show me the big one.

_____ Picks longer red stick: move to 4a

_____ Picks shorter purple stick: move to 4b

C a. If longer red stick is now said to be bigger:
Before (replace sticks in original position, with
 ends closest to child aligned, and then move purple
 stick away from child) you said this (point to
 purple) was biggest. Now (move red stick away from
 child so that it extends $\frac{1}{2}$ " past other) you say this
 R P (point to red) is bigger. Does it really change? Does
 E it get to be more gum to chew?

If yes: How does that happen?

- b. If shorter purple stick is again picked:
(Move red stick toward child so that ends of sticks closest to child are aligned.) You said this (point to purple) was biggest. Is it biggest now?

C
|
R P
E

Do they really change? Does it get to be more gum to chew?

What happens?

Move to Q5.

5. Here are two gum sticks. (4" red, 4½" orange placed parallel to child's line of sight, with ends aligned in accordance with which way he is seeing illusion, i.e., if incorrect and picked orange on Q1, align ends farthest from child. If incorrect on Q3 and picked purple, align ends closest to child; if correct on both Q1 and Q3, align ends closest to child if boy, farthest from child if girl.)

C
|
O R
E

See, one is bigger, one is longer? When I say so, you can pick the bigger one to keep or to eat. If you don't pick the biggest one, you won't get gum this time. You'll get another chance to get gum later. Now, before you pick, I put them like this (bend orange stick so that a straight line drawn from end to end would be about 3-3/4", keeping alignment at one end with straight stick and not picking up from table).

C
C
O R
E

- a. Now look at them (pause). If you can show me the biggest one, I'll give it to you to eat after while.

_____ Picks correct orange: Move to Q6

_____ Picks incorrect red: Move to 5h

- b. Which was bigger before I bent it? red orange

What happened?

- c. (Straighten orange, pause, then bend red with same ends aligned.) Now show me the big one.

red orange

d. Does it really change when I bend it?

Why (not)?

6. Here are two gum sticks (4" and 4½" of same color, randomly arranged, non-parallel). Show me the bigger one.

_____ Picks longer stick

_____ Picks shorter stick

* If child does not measure: Show me how you can tell which is bigger. How can you make sure?

* If still no measuring: If I thought this (child's non-choice) is the bigger one, how could you show me it's not?

* If still no measuring: Can you measure?

* If no or no response: Put them together so you can really be sure.

Note carefully the measuring behavior. To be considered measurement, there must be some systematic adjustment of the position of the sticks for comparison purposes. The following behaviors are considered measurement:

- a. Alignment of ends
- b. Standing on end, comparing tops
- c. Pushing together, with ends of long overlapping and including ends of short.

NAME: _____

DATE: _____

GUESSING GAME

Now we'll play a game, hide the penny. I'm going to hide the penny,
and you have to guess where it is: find which hand the penny is in.

(E puts hands behind back, a penny in each hand on the first six trials,
a penny in neither hand on the next four trials, pennies in both hands
on the eleventh and twelfth trial.)

<u>Trial</u>	<u>Child's Choice</u>		<u>Reaction to Result</u>
1	L	R	
2	L	R	
3	L	R	
4	L	R	
5	L	R	
<u>6</u>	L	R	
7	L	R	
8	L	R	
9	L	R	
<u>10</u>	L	R	
11	L	R	
12	L	R	

Now, you hide the penny, and I'll guess where it is.

<u>Trial</u>	<u>Penny Hand</u>	<u>E's Guess</u>	<u>Child's Reaction</u>	<u>Method of Hiding</u>
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1	R L	Rt Wrg		
---	-----	--------	--	--

2	R L	Rt Wrg		
---	-----	--------	--	--

3	R L	Rt Wrg		
---	-----	--------	--	--

4	R L	Rt Wrg		
---	-----	--------	--	--

5	R L	Rt Wrg		
---	-----	--------	--	--

6	R L	Rt Wrg		
---	-----	--------	--	--

7	R L	Rt Wrg		
---	-----	--------	--	--

Did you want me to find the penny?

When I was doing it, did I want you not to find the penny? (demonstrating)

Did I want you to fool me?

NAME: _____

DATE: _____

OBJECT SORTING AND CLASS INCLUSION TASKS

Equipment: Randomly arranged cluster of two modern family of dolls
and one peasant family of dolls.

1. "Put them in order, put the ones together that go together. Why do they go together?" (Require at least five groupings--record each group and reason group goes together.)

- a. (If most groupings are associatives:) "Put the ones that are the same together here."

2. (Take out two pieces of paper and place on table; remove dolls.)
Now we're going to take all these dolls and make two piles out of them. Let's take this boy doll and put it on the paper. Now put all the other ones that go with the boy on this paper. Put the other ones that go together on this paper over here. (Ask, "Why do these go together?" for each group.)

2-15-73

INSTRUCTIONS FOR ADMINISTERING VEROFFS' ACHIEVEMENT MOTIVATION TASKS

I. Instructions for Measures of Social Comparison Interest

A. Materials

Three identical containers with tasks to do inside.

B. Instructions

HERE ARE THREE BOXES (Place boxes so that #1 is on child's right). THEY ALL LOOK ALIKE ON THE OUTSIDE, DON'T THEY? WELL, THERE'S SOMETHING INSIDE (rattle each of them) FOR YOU TO DO. IN THIS BOX (pointing to one on child's right) THERE IS SOMETHING WHICH IS VERY EASY FOR BOYS (GIRLS) ____ YEARS OLD.

IN THIS BOX (pointing to the middle one) THERE IS SOMETHING THAT SOME BOYS (GIRLS) ____ YEARS OLD CAN DO AND SOME CAN'T DO.

YOU MAY DO JUST ONE. REMEMBER, THIS ONE IS EASY; THIS ONE SOME BOYS (GIRLS) YOUR AGE CAN DO AND SOME CAN'T; AND THIS ONE IS HARD. WHICH ONE WOULD YOU LIKE TO TRY? (wait for an answer, record it; then open the box.)

TM 009530

1/19/73

II. Instructions for Administering Picture Memory Task

A. Materials

Five sheets of cardboard with one, two, three, four, and five objects pictured on them in a manila folder.

B. Instructions

NOW LET'S PLAY A DIFFERENT GAME. (You may have done this before.) IN THIS FOLDER ARE SOME SHEETS OF CARDBOARD. ON EACH THERE ARE PICTURES OF DIFFERENT THINGS. WHEN I SHOW YOU THE CARDBOARD, YOU LOOK AT THE PICTURES CAREFULLY: AND TRY TO REMEMBER THEM, BECAUSE SOON I AM GOING TO TURN THE CARDBOARD SO YOU CAN'T SEE THE PICTURES. THEN, YOU TELL ME WHAT PICTURES YOU SAW. OKAY? LET'S LOOK AT THIS CARDBOARD FIRST.

(Point to the pictures individually on the card, say) THIS IS A _____. (Let the child finish the sentence. If he hesitates, supply a name. After he has named all the objects, say) NOW LOOK CAREFULLY, BECAUSE SOON I'M GOING TO TURN THE CARD OVER (after 5 seconds do so).

NOW TELL ME WHAT PICTURES YOU SAW. (Check off the objects the child names. Do not give verbal feedback except to reply YES or NO if child names something and asks, "Did I say that." Let him have ample time to finish the recall. If there is any doubt about him being through, ask: ARE YOU FINISHED? Turn the paper over for the child's evaluation and say noncommittally) DID YOU NAME ALL THE PICTURES?

<u>Child Says</u>	<u>Actually</u>	<u>You Say</u>
Yes	Yes	YES, YOU DID NAME ALL THE PICTURES
Yes	No	NO, YOU DID NOT NAME THEM ALL, BECAUSE THERE IS _____ AND _____. (Name at least 2 omissions if there are 2 or more.)
No	No	THAT'S RIGHT. YOU DID NOT NAME THEM ALL BECAUSE THERE IS _____ AND _____ AND (Name at least 2 omissions if there are 2 or more.)

Picture Memory - 2

<u>Child Says</u>	<u>Actually</u>	<u>You Say</u>
No	Yes	YES, YOU DID NAME THEM ALL. YOU SAID . . . (Name them.)

OKAY. NOW LET'S TRY THIS CARD ... ETC. ... (Continue until two consecutive failures. Then show the child the first item, or the second item if he passed the first 4, the last success, the first failure and the second failure. Display all 4 with easiest on his right. Say) LET'S TRY ONE MORE OF THESE AGAIN. REMEMBER, THESE PICTURES WERE EASY FOR YOU TO REMEMBER (point); THIS CARD WAS NOT SO EASY, BUT YOU GOT IT RIGHT (point). THIS CARD WAS HARD FOR YOU (point); AND THIS ONE WAS VERY HARD FOR YOU. WHICH ONE WOULD YOU LIKE TO TRY AGAIN? (Record choice.)

(After the child chooses, let him try as before and check off on list. Put your paper with the pictures away. Then whether successful or not, do not show him the paper again. Simply say cheerily) OKAY. (Record whether or not successful.)

(If child asks whether correct, say) YOU DID JUST FINE.

NOTE: On picture memory, picture drawings, or beads if a child succeeds on only one task, then fails 2 consecutively, say: THAT WAS JUST FINE-- after second failure and do not give choice for repeating task.

2-15-73

III. Instructions for Magnaform Task

A. Materials

Magnaform game - magnetic board with magnetized wooden shapes.

B. Instructions

NOW WE ARE GOING TO DO SOMETHING WITH THIS MAGNETIC BOARD (set board up on stand with wood pieces on table in front). WE CAN PUT THESE COLORED WOODEN PIECES ON THE BLACK BOARD TO MAKE DIFFERENT SHAPES AND DESIGNS. (Make sure child understands how it works; let him/her put a few pieces on board). I'LL SHOW YOU A SHAPE ON THIS PAPER AND YOU SEE IF YOU CAN MAKE IT ON THE BOARD. (After child puts piece on the board, ask noncommittally): NOW, TELL ME, DOES YOUR SHAPE LOOK LIKE THIS ONE? (If necessary, say): LOOK VERY CAREFULLY. (Use strict standards in evaluating after the first two items).

<u>Child says</u>	<u>Actually</u>	<u>You say</u>
Yes	Yes	YES, IT DOES LOOK LIKE THIS ONE.
Yes	No	NO, IT DOES NOT REALLY LOOK LIKE THIS ONE. LOOK AT IT AGAIN. (If still says "yes", go on and say: NO, IT DOES NOT LOOK LIKE THIS ONE BECAUSE . . .).
No	No	THAT'S RIGHT. YOUR SHAPE DOESN'T LOOK JUST LIKE THIS ONE BECAUSE . . . (Point out at least two errors if two or more).
No	Yes	YES, YOUR SHAPE DOES LOOK JUST LIKE THIS ONE. LOOK AT THEM BOTH AGAIN.

ALL RIGHT. NOW LET'S TRY ANOTHER ONE. MAKE ONE LIKE THIS. LOOK AT IT CAREFULLY AND MAKE IT LOOK LIKE MINE. (Continue same instructions until the child has failed twice consecutively. Take all of the child's pieces off the board).

NOW LET'S MAKE ONE MORE SHAPE. YOU MAY TRY ONE OF THESE THAT YOU HAVE DONE. (Place down all 4 designs.)

ALL RIGHT. NOW LET'S TRY ANOTHER ONE. MAKE ONE LIKE THIS. LOOK AT IT CAREFULLY AND MAKE IT LOOK LIKE MINE. (Continue same instructions until the child has failed twice consecutively. Take all of the child's pieces off the board.)

NOW LET'S DO ONE MORE DESIGN. YOU MAY TRY ONE OF THESE THAT YOU HAVE DONE. (Place down all 4 designs.)

REMEMBER, THIS ONE WAS QUITE EASY FOR YOU. (Display on child's right the first or second one if he passed the first four.)

THIS ONE WAS NOT EASY, BUT YOU GOT IT RIGHT. (Display last success.)

THIS ONE WAS HARD FOR YOU. (Display first consecutive failure.)

AND THIS ONE WAS VERY HARD FOR YOU. (Display on child's far left the second consecutive failure.)

NOW, WHICH ONE OF THESE SHAPES WOULD YOU LIKE TO TRY AGAIN? (Record choice. Let him reproduce it, as before. Record whether successful. Regardless of success, say) THAT WAS JUST FINE.

2-15-73

IV. Instructions for Administering Bead Task

A. Materials

Bag to hold your strings out of sight. Box on table for kid's beads. A large supply of beads of assorted shapes and colors.

B. Instructions

THE NEXT THING WE'RE GOING TO DO IS WITH THESE BEADS. (Open box with Child's beads). YOU SEE THEY ARE ALL DIFFERENT COLORS AND SHAPES (pick up and name all colors). WE CAN PUT THEM TOGETHER AND MAKE DIFFERENT THINGS OUT OF THEM (Have child practice putting beads together.)

THIS IS THE GAME: I'LL SHOW YOU SOMETHING PUT TOGETHER ALREADY. YOU'LL LOOK AT IT CAREFULLY, BECAUSE I'M GOING TO HIDE IT BEHIND MY BACK AND THEN YOU'LL MAKE ONE JUST LIKE IT--WHERE THE BEADS ARE THE SAME COLORS, SHAPES, AND IN THE SAME ORDER AS MINE. AND THEN WE'LL SEE WHETHER YOURS LOOKS LIKE MINE. (Show item-- be sure the child's beads in box are not within his reach.) NOW MAKE ONE WHERE THE BEADS ARE THE SAME COLORS AND THE SAME SHAPES AS MINE. (Offer child his box with assortment of beads and wait until the child shows he is through. If there is any doubt about it, ask): ARE YOU FINISHED?

DOES YOURS LOOK LIKE THIS ONE? (If the child says "yes" or "no" too hastily, add): LOOK VERY CAREFULLY.

<u>Child Says</u>	<u>Actually</u>	<u>You Say</u>
Yes	Yes	YES. IT DOES LOOK JUST LIKE THIS ONE.
Yes	No	NO, IT DOES NOT LOOK LIKE THIS ONE BECAUSE (point out at least 2 errors if 2 or more)
No	No	THAT'S RIGHT. YOUR BEADS DON'T LOOK JUST LIKE THIS ONE BECAUSE . . . (point out at least 2 errors if 2 or more).
No	Yes	YES, YOUR BEADS DO LOOK JUST LIKE THIS ONE. LOOK AT THEM BOTH AGAIN. (If he says peg ends are not the same, say): THAT'S OKAY, THAT PART DOESN'T COUNT.

Bead task - 2

(Every time the child is successful, go to the next bead design. After the child has failed twice consecutively, show him the first item, or the second item if he passed the first 4, the last success, the first of the consecutive failures and the second consecutive failure. Say): NOW, LET'S MAKE ONE MORE STRING OF THE BEADS. YOU MAY TRY ONE OF THESE THINGS. (Place down 4 strings of beads).

REMEMBER, THIS ONE WAS QUITE EASY FOR YOU TO DO (Display on child's right the first item, or second one if he passed the first four).

THIS ONE WAS NOT SO EASY, BUT YOU GOT IT RIGHT. (Display last success).

THIS ONE WAS HARD FOR YOU. (Display first consecutive failure.)

AND THIS ONE WAS VERY HARD FOR YOU. (Display on far left the second consecutive failure.)

NOW, WHICH ONE WOULD YOU LIKE TO TRY AGAIN? (Display easiest on his right. After the child chooses, put away your string and let him try. Then whether successful or not, do not show him your string. Simply say cheerily: OKAY. Record whether or not successful. If child asks whether correct, say: YOU DID JUST FINE.)

2-15-73

V. Instructions for Drawing Task

A. Materials

Blank paper, a felt tip pen, and eight designs to draw. The simplest one embedded in the next most simple, the latter embedded in the next one, and so on. The first one is a single line.

B. Instructions

NOW WE ARE GOING TO DO SOME DRAWING. I WOULD LIKE TO SEE WHAT KINDS OF THINGS YOU CAN DRAW WITH THIS PEN (show the first model). LET'S TRY THIS ONE. DRAW ONE THAT LOOKS LIKE THIS. LOOK AT IT CAREFULLY AND MAKE IT LIKE MINE. (Leave model in front of the child).

(For the child's evaluation point to the model and ask noncommittally): NOW, TELL ME, DOES YOUR DRAWING LOOK LIKE MINE? (If necessary, say): 'LOOK VERY CAREFULLY. (Use strict standards in evaluating after the first two items).

<u>Child Says</u>	<u>Actually</u>	<u>You say</u>
Yes	Yes	YES, IT DOES LOOK LIKE THIS ONE.
Yes	No	NO, IT DOES NOT REALLY LOOK LIKE THIS ONE. LOOK AT IT AGAIN. (If still says "yes", go on and say: NO, IT DOES NOT LOOK LIKE THIS ONE BECAUSE . . . (Point out at least two errors if two or more; e.g., THE LINES IN MY DIAMOND ARE ALL THE SAME SIZE, BUT YOURS AREN'T. YOUR LINES HERE AREN'T STRAIGHT LIKE MINE.)
No	No	THAT'S RIGHT. YOUR DRAWING DOESN'T LOOK JUST LIKE THIS ONE BECAUSE . . . (point out at least two errors if two or more).
No	Yes	YES, YOUR DRAWING DOES LOOK JUST LIKE THIS ONE. LOOK AT THEM BOTH AGAIN.

ALL RIGHT. NOW LET'S TRY ANOTHER ONE. DRAW ONE LIKE THIS. LOOK AT IT CAREFULLY AND MAKE IT LOOK LIKE MINE. (Continue same instructions until the child has failed twice consecutively.)

NOW LET'S MAKE ONE MORE DRAWING. YOU MAY TRY ONE OF THESE THAT YOU HAVE

Drawing task - 2

NOW LET'S MAKE ONE MORE DRAWING. YOU MAY TRY ONE OF THESE THAT YOU HAVE DONE. (Place down all 4 drawings.)

REMEMBER, THIS ONE WAS QUITE EASY FOR YOU. (Display on child's right the first or second one if he passed the first four.)

THIS ONE WAS NOT EASY, BUT YOU GOT IT RIGHT. (Display last success.)

THIS ONE WAS HARD FOR YOU. (Display first consecutive failure.)

AND THIS ONE WAS VERY HARD FOR YOU. (Display last success.)

NOW, WHICH ONE OF THESE DRAWINGS WOULD YOU LIKE TO TRY AGAIN? (Record choice. Let him reproduce it, as before. Record whether successful. Regardless of success, say) THAT WAS JUST FINE. (Clip all drawings onto data sheet at end.)

2-15-73

VI. Instructions for Administering Bean Bag Throw Task

A. Materials:

Plastic pail and box, bean bag, 8 foot oil cloth marked at intervals of 1 foot
(Be sure to place pail or box away from the wall, so it can't become a backboard.)

B. Instructions

THE NEXT THING WE'LL DO IS SOMETHING THAT MANY CHILDREN IN SCHOOL LIKE TO
PLAY. YOU ARE TO THROW THIS BEAN BAG INTO THE PAIL FROM BEHIND THESE LINES.
LET'S START UP REAL CLOSE TO THE PAIL (Bring the child behind the first line
with his toes behind it.) NOW TRY TO GET THE BEAN BAG IN. (Record success or failure
on your sheet each time.)

(If the bean bag goes in from Line 1,
say:)

OKAY, THAT'S IT. WOULD YOU GET
THE BEAN BAG AND STAND RIGHT HERE
(point to line 2) AND TRY TO
GET THE BEAN BAG IN.

(If bean bag doesn't go in from
line 1, say casually):

O.K. WHY DON'T YOU TRY THAT AGAIN.

(If bean bag doesn't go in on
second try from line 1, or if
bean bag goes in on second try
from line 1 and then he misses
on line 2, or if bean bag goes
in from line 1, but not line 2,
say):

OH! I SEE THE PROBLEM. I WAS
USING THE WRONG CONTAINER. LET'S
FORGET THAT AND START AGAIN.
(Move up to the plastic box and
start on line 1. So note on sheet).

(On all subsequent lines,
regardless of whether bean bag
goes in or not, say):

O.K. GET THE BEAN BAG AND TRY THE
NEXT ONE. (If doing very well
after line 3, say): BE SURE TO
STAND UP STRAIGHT WHEN YOU THROW.

(After the child has failed twice consecutively, take him away, aside from
the lines, take the bean bag and, say): STAND AWAY HERE AND LISTEN TO WHAT I
HAVE TO SAY. LET'S THROW THE BEAN BAG ONCE MORE. YOU MAY TRY FROM BEHIND ONE
OF THESE LINES.

REMEMBER, FROM HERE, LINE ____ (line #1, or Line #2 if succeeded at first four),
IT WAS QUITE EASY FOR YOU TO GET THE BEAN BAG IN.

THIS LINE, LINE ____ (last success) WAS NOT SO EASY, BUT YOU GOT THE BEAN BAG
IN ALL RIGHT.

FROM BEHIND LINE ____ (first consecutive failure), IT WAS HARD FOR YOU.

AND FROM HERE, LINE ____ (last failure), IT WAS VERY HARD FOR YOU.

NOW, FROM WHICH OF THESE LINES WOULD YOU LIKE TO TRY AGAIN: LINE ____, ____,
____, OR ____? (After the child chooses, let him try as before. Record choice
and success. End by saying): OKAY.

2 27-73

SCORING SHEET FOR VEROFF TESTS

NAME _____ DATE _____

SCHOOL _____

Instructions: Circle Success, X failure on numbers

Circle which of 4 chosen S S F F

Circle Yes or No, whether successful at level chosen

A. Social Comparison Task

Easy Medium Hard

B. Picture Memory Task

<u>Rabbit</u>	<u>Dog</u>	<u>Cat</u>	<u>Crayons</u>	<u>Mailman</u>	<u>Children</u>
	<u>Cow</u>	<u>Horse</u>	<u>Duck</u>	<u>Playground</u>	<u>Turkey</u>
		<u>Hammer</u>	<u>Bus</u>	<u>Flower</u>	<u>Rake</u>
			<u>Frog</u>	<u>Turtle</u>	<u>Bird</u>
				<u>Book</u>	<u>Houses</u>
					<u>Fireman</u>

1	2	3	4	5	6	S	S	F	F	Yes	No
---	---	---	---	---	---	---	---	---	---	-----	----

C. Magnaform Task

1	2	3	4	5	6	7	8	9	S	S	F	F	Yes	No
---	---	---	---	---	---	---	---	---	---	---	---	---	-----	----

D. Bead Task

1	2	3	4	5	6	S	S	F	F	Yes	No
---	---	---	---	---	---	---	---	---	---	-----	----

E. Drawing Task

1	2	3	4	5	6	S	S	F	F	Yes	No
---	---	---	---	---	---	---	---	---	---	-----	----

F. Bean Bag Throw: Pail

1	2	3	4	5	6	7	8	S	S	F	F	Yes	No
---	---	---	---	---	---	---	---	---	---	---	---	-----	----

PUZZLE INTERACTION

Name _____ Ss No. _____ Date _____ Coder _____

Category	Puzzle #1	Puzzle #2	Puzzle #3	Color-Form	Lotto
Other Responds:					
Specific Direction-Verbal					
Spec. Direction-Nonverbal					
nspec. Dir.-Verbal					
nspec. Dir.-Nonverbal					
Reward & Encour.-Verbal					
Reward & Encour.-Nonverbal					
Criticism-Verbal					
Criticism-Nonverbal					
Refuses or Ignores					
Father Initiates:					
Specific Direction-Verbal					
Spec. Direction-Nonverbal					
nspec. Dir.-Verbal					
nspec. Dir.-Nonverbal					
Reward & Encour.-Verbal					
Reward & Encour.-Nonverbal					
Criticism-Verbal					
Criticism-Nonverbal					
Ignores or Refuses					
Total					

Total Mean

Nurturance (1-6, 10-15)
Non-nurturance (9,18)
Restrict. (7,8,16,17)

Fully Mtg. Explicit Nds. (1,2)
Partly Mtg. Explicit Nds. (3,4)
Verb. & Nonverb. Rein. (5,16,14,15)
Mtg. Implicit Needs (10,11,12,13)
Not Mtg. Needs & Ignor. (9, 18)
Aversive Verbal (7,16)
Aversive Nonverbal (8,17)

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UNIVERSITY OF MICHIGAN
SCHOOL OF SOCIAL WORK

Materials and Procedures
used in the
Father-Child Interaction Project
April 15, 1974

Norma Radin, Principal Investigator
Ann Epstein, Research Associate
Joan Eadie, Research Assistant
Bonnie Jordan, Research Assistant

TM 009530

OVERVIEW OF PROCEDURES

Sample Selection: Names of white children eligible to enter kindergarten, and living with both mother and father, were obtained from local school districts. A letter signed by the building principal (a copy of which is attached) was sent to the parents, inviting them to participate in our study of father-child relations. The father was then telephoned by a male interviewer on our staff. If the father agreed to participate, an interview was scheduled, and the family subsequently classified as middle class, working class, or lower class using the Hollingshead-Redlich Scale (1957). A copy of the scale is attached.

Interview: The interview was conducted in the subject's home. As requested in the phone call by the interviewer, only the father and the child were present in the room with the interviewer during this time. A tape recording was made of the entire interview, with the father's permission. The father was told at the beginning that one purpose of the taping was to record and observe how he interacted with his child during that time, thus no deception was involved. Discussions with the father took between one and one and one-half hours, and were followed by the child's completing tasks provided by the interviewer (a description of the tasks is attached). The father was invited to help the child or not, as he wished.

Testing: Within a few weeks of the interview, families were re-contacted and appointments made to have their children participate in two individual testing sessions. Fathers had been told that this procedure would be followed. The testing sessions were generally held at the school where the children would be attending kindergarten. In the first session, a series of Piagetian tasks developed by Rheta DeVries (1971) was administered (descriptions of these tasks are enclosed). The second testing session, scheduled several weeks after the first, included the Stanford-Binet Intelligence Scale. A measure of Motivation to Achieve was derived from the face sheet of the Binet (the procedure used is included). Veroff's (1969) measure of Achievement Motivation (also enclosed) was also administered at the second session, prior to the Binet test.

Coding: The interactions between the father and child taking place during the thirty minutes of the interview with the most father-child interactions were coded using the enclosed description of categories. The father-child interactions during the puzzles were also coded. Descriptions of these puzzle categories are also enclosed. Two coders, working independently, compared their

scores on a sample of 20 interviews, and a measure of reliability was obtained, using Cartwright's (1956) formula:

$$\text{The percentage of reliability} = \frac{\# \text{ of agreements}}{\# \text{ of agreements} + \# \text{ of disagreements}}$$

Second Interview: To test the reliability of the data from the first interview, a second interview (enclosed) was carried out with 20 fathers picked from all three classes, who agreed to go through another interview with their child present. This was done to determine if the same general frequency of behaviors would show up during the second interview.

Re-testing: Approximately 9-12 months following the first set of testing, the schools participating in the project were contacted and asked to send another letter to parents involved the previous year. This letter asked for their cooperation in continuing the project, and said that the children would be re-tested in the school, if parental permission was granted. Parents and principals had been informed at the start of the project that this procedure would be followed. The Project itself sent a letter to the parents requesting their cooperation in this second phase of testing in the study; a permission postcard was included (copies are enclosed). Re-testing, using the same Piagetian tasks and the Stanford-Binet measures, is currently underway.

Data Analysis: The following analyses have been performed to date:

- 1) Indices of Nurturance and Restrictiveness were computed using essentially the same procedure employed in the pilot study (Radin, 1972). The slight modifications made are described in the attached coding sheet. A third index, Non-nurturance, was added to include interactions that were neither nurturant nor restrictive (see attached coding sheet for details).
- 2) Pearson coefficients of correlation were computed interrelating all of the cognitive measures, Nurturance score, Restrictiveness score, Non-nurturance score, and motivational measures for the total sample and each of our 11 subgroups: boys, girls, middle class, working class, lower class, middle class boys, working class boys, lower class boys, middle class girls, working class girls, lower class girls.
- 3) t-tests were employed to examine sex and social class differences in the frequencies of father behaviors, and in the cognitive and motivational measures. Sex differences within social class were also investigated with

t-tests.

- 4) Factor analyses of father-daughter interactions were performed using a Varimax rotation. Each sex was analyzed separately as sharp sex differences were found in the factorial structures. After rotating all the factors with an Eigenvalue over 1 (a total of 9 factors had an Eigenvalue over 1), plus other numbers of factors, a factor analysis with six factors was chosen as having the simplest structure.
- 5) Factor analyses of the father-son interactions were performed using the same procedure used with girls. 8 factors had an Eigenvalue over 1, but we felt the four-factor structure was most appropriate. The factor loadings for the four factors are enclosed.
- 6) Factor analyses of the Piagetian tasks were performed. Since no sex differences were found in the factorial structure of scores for boys and girls, data from both sexes were combined in one factor analysis. Five factors had an Eigenvalue over 1; five factors was also found to be the simplest structure. A listing of the factor loadings is attached.
- 7) A factor analysis of the 13 face sheet items on the Binet Test Booklet was performed using the same procedure described in #4 above. A mean of the 13 items had been computed and used in the correlation matrices described in #2 above. This procedure had proved fruitful in the Project Director's study of mother-child interactions (Radin, 1971) described in the two papers enclosed, although it was not used in the pilot study of fathers. Although 3 factors had Eigenvalues over 1, the simplest structure was found to have 2 factors. Factor loadings for these factors are enclosed.
- 8) Partial correlations were computed between father-child interactions and cognitive measures controlling for motivation to achieve. Two measures of motivation to achieve were used: the mean of the Binet face sheet items, and the score for Realistic choices on the Veroff Achievement Motivation tasks. These partial correlations were done when significant correlations were found between father-child interactions and intellectual measures. The results obtained are enclosed.
- 9) Stepwise multiple regression equations were computed for the total sample, and for sex and social class subgroups, using as the dependant variables

page 4

Binet IQ, Piaget Mean Total Performance, and Piaget Verbalization Score. The following independent variables were used: Father's Education, Father's Occupation, 4 Father Factors (for boys) or 6 Father Factors (for girls). The results obtained for boys are attached.

We are now in the process of computing correlations, partial correlations, and regression equations using the 2 factors obtained on the Binet face sheet. We are also factor analyzing the responses to the Cognitive Home Environment Scale (a copy is enclosed), and will use those factors in correlation matrices and regression equations.

Finally, we are analyzing the father behaviors while the child completed the tasks in the home and will use those scores in correlation matrices and possibly in regression equations.

OVERVIEW OF MATERIALS USED IN FATHER-CHILD INTERACTION PROJECT

- A) Coding Manual for all the variables.
- B)
 - 1. Interview Questionnaire
 - 2. Score Sheet for coding the Father-Child Interactions from the interview.
 - 3. Reliability (Second) Interview
See Appendix A, Coding Manual for Categories of Father-Child Interaction.
The interviews are tape recorded using a portable tape recorder. The interviews take between an hour and an hour and a half.
- C) The Cognitive Home Environment Scale (CHES), which is based on the Environmental Process Scale (Wolf, 1964), appears in the interview questionnaire on pp. 4-9. See pp. 6-7 of the Coding Manual for scoring and coding procedures.
- D) Torgoff Scale (1967)
We used a shortened version developed by Stinson (1972).
See p. 12 of the interview (p. 11 for introduction by interviewer). Scoring and coding procedures appear on pp. 8-9 of the Coding Manual.
- E) Piaget tasks developed by Rheta DeVries (1971)
 - 1. A brief description of the Piaget tasks we are using for the study.
 - 2. Scoring Sheet developed for scoring performance on the tasks. See pp. 24-25 and Appendix D in the Coding Manual for scoring and coding details.
Administering these tasks takes about 45-50 minutes.
 - 3. Instructions for Administering DeVries' Piagetian Tasks
- F) Stanford-Binet Intelligence Scale
See Appendix B, in the Coding Manual, for Factors Affecting Test Performance measure, using the face sheet of the Binet. We use both the old norms and the new norm in our data analysis.
- G) Veroff Achievement Motivation
 - 1. Instructions for administering the tests.
 - 2. Scoring Sheet for the Veroff Tasks. See pp. 11-12 of the Coding Manual also. A description of the tasks is attached.
- H) Games Interactions
See Appendix C of the Coding Manual for a description of the games interactions.
 - 1. Score Sheet for the games (or puzzles) interactions.
- I) Open-Ended Questions
 - 1. Scoring Sheet for Open-Ended Questions which appear in the interview questionnaire, p. 2, pp. 10-11, and p. 13.

2. Scoring and coding procedures appear on pp. 13-21 of the Coding Manual.

J) Training Procedures for Interviewers and Testers

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APPENDIX M

TRAINING PROCEDURES FOR INTERVIEWERS AND TESTERS IN THE FATHER-CHILD
INTERACTION PROJECT

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Father-Child Interaction Project
October 23, 1974

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Training Procedures

Interviewers: The interviewers were all young white males, in their 20's, who were enrolled in various graduate programs in the University of Michigan. They had all had previous experience conducting interviews. Originally, 3 interviewers were trained for the project. Subsequently, because one interviewer moved away and the others found that their available time was limited, 5 more interviewers were trained. The training procedure was the same for all the interviewers, and training sessions were conducted by the project coordinator, and one or two research associates.

In the first meeting, interviewers were given an overview of the purposes of the project, i.e., that we were interested in studying fathers' interactions with their 4-year-old sons and daughters, that this would be done through tape recordings of, and notes taken during, an interview conducted in the home with only the father and child present in the room with the interviewer, that the families involved would be white, intact, of middle-, working-, and lower-class backgrounds, and from a number of cities in Michigan. The interviewers were then given a set of general instructions and a copy of the interview. The general instructions covered the following areas: (1) the procedure interviewers were to use in contacting fathers to request their participation and arrange an interview; (2) a summary of the content of the interview questionnaire that described the various structured and unstructured items; (3) how to explain the purposes of the project and the nature of the interview procedure and tape-recording to the father at the beginning of the interview session; (4) the procedure they were to follow in giving the child a number of puzzles and games to complete at the end of the interview; (5) how the interviewers were to take notes on all nonverbal interactions that occurred between the father and child during the interview and which could not be picked up in the tape-recording; and (6) the interviewer's explanation to the father that the

family would be contacted soon to arrange for trained testers to administer some "school readiness" tests to the child. The general instructions stressed throughout the importance of relaxing the father and making him feel that the interviewer was there to listen to his viewpoints about children, education, and any other topics the father wanted to discuss in relation to our study. Interviewers were told to keep their interactions with the child to a minimum during the interview, i.e., not initiating interaction with the child and only responding briefly if the child initiated contact with them, so as not to set a model or in any way influence the father's behavior with his child.

The trainers and interviewers then examined the questionnaire together and answered questions. It was explained in which areas the exact wording of introductions or items should be followed on standardized instruments, and in which items a number of alternative approaches could be taken to help father relax and talk more freely. Trainers then played for the interviewers tapes from a pilot study (Radin, 1972 & 1973) of middle- and lower-class fathers and sons, using a similar interview, that had been done 3 years previously. The tapes were discussed and good and bad procedures of the pilot interviewer were pointed out. Following this the interviewers practiced the introductions, some questionnaire items and the puzzle-administration procedure on the trainers, and were given feedback and suggestions. The interviewers were then shown how to operate the small, but sensitive Sony TC-110A tape recorder, which has a built-in microphone. Finally, they were each given additional pilot tapes to listen to at home, and then the names of two people with preschool-age children whom they could call to arrange a practice interviews. These people were generally friends of those employed in the project who had agreed to help us out.

After they had completed these 2 practice interviews, the interviewers brought their tapes and the protocols containing the notes on nonverbal interactions to the project office for the trainers to evaluate. The trainers then wrote up a sheet of criticisms common to all the interviewers, as well

some good points we wanted them to continue using. In the second meeting with the group of interviewers, this list was given to them and our suggestions were discussed. The interviewers in turn told us about problems they had encountered with the general procedure (e.g., the questionnaire was too long) or with specific items, and together we arrived at standard ways to handle problems, shortened the interview, and modified some unstructured items which all the interviewers had found troublesome.

Each interviewer then did another practice session with a family, using the revised interview schedule. Trainers listened to the tapes and examined the notes on non-verbal behavior, and then met with each interviewer individually to make final corrections and suggestions about their procedure. After this, interviewers were given cards with the names, addresses and phone numbers of actual families to be contacted for the project, and they then began to set up appointments and conduct interviews.

Piaget Testers: Originally, the two research associates involved with the project were trained to administer a set of 8 Piaget tasks by Rheta DeVries, the person who had designed the tasks (DeVries, 1971). Following this one or both of the research associates trained 4 female graduate students in education or psychology to administer the tasks. The same training procedure was followed in the first and second years of the project.

In the first meeting with prospective testers, the general nature and goals of the project were explained. The women were told that although we were training all of them to administer the set of Piagetian tasks, we would only be hiring those who we felt would provide us with valid data from the testing sessions with the children. The trainer(s) gave a general summary of what each task involved and then the following written materials were distributed: (1) detailed descriptions of each task written by DeVries; (2)

the scoring procedures for each task; and (3) blank protocols containing the procedures for administering each task and recording the child's responses. Testers were asked to read these materials before the next training session.

In the second meeting, the trainer's demonstrated all 8 tasks to the testers and answered questions about administering the tests and filling in the protocols. The testers were told that even though they would not be scoring the protocols, it was important for them to know the scoring criteria so that they could "probe" accordingly when giving the tasks to the children. At the third session, testers practiced administering the tasks to the trainer(s). Piaget kits, containing all the necessary materials for giving the series of tasks, were then distributed to each tester. They were directed to spend the next two weeks practicing the tasks on each other, on friends, and finally on children who they knew or who were referred them to. At the fourth meeting, questions and problems that testers had encountered when practicing were discussed, and standardised solutions to these problems were agreed upon. Following this, times were arranged when the trainer(s) could observe the testers individually, administering the tasks to 4-year-old (the first year) and 5-year-old (the second year) children. These "check-out" sessions were held in day care centers the first year, but because this proved disruptive to the centers, they were held in a home the children were familiar with the second year. The trainer(s) took notes on the testers after observing them and also examined the protocols they had filled out. Feedback was then given to the testers individually about their performance, with suggestions on how to improve their administration of specific tasks. Only those testers who required minor improvements were then hired. Two testers, in addition to the trainers, were hired to do the Piaget testing the first year. All four trainees were proficient enough to become testers the second year.

Binet-Veroff Testers: All the testers were graduate students in education of psychology qualified to administer the Stanford-Binet Intelligence Test. In the first year of testing, three females were hired and were also trained to administer the Veroff (1969) measures of Social and Autonomous Achievement Motivation. Second-year testers included one female and two males, and administered the Stanford-Binet scale only.

In the first meeting with the testers the general nature and goals of the project were explained by the project coordinator and a research associate. Testers were told that in addition to administering the intelligence test, we wanted them to fill out the face sheet of the Stanford-Binet protocol, in which various aspects of the child's behavior during testing, such as attention and dependency, are rated. A sheet describing the rating scale we wanted them to use, and including the criteria and behavioral examples for each rating was distributed and then discussed (Radin & Epstein, 1973, appendix B). Stanford-Binet Intelligence Scale test kits were also distributed ~~and then~~ to each tester, and for second-year testers only a time was arranged to observe them individually administering the test to a 5-year-old child. All the testers were found to be qualified, with minor corrections, upon observation.

For first-year testers, materials describing the nature and administration of Veroff's measures were also distributed at the end of the first meeting and testers were asked to read them before the second meeting. At the second meeting, the trainers demonstrated the Veroff measures, and the testers then practiced on the trainers. At the close of the second meeting, each tester was given a set of Veroff materials and score sheets, and told to practice administering the tasks to children during the following week. A brief meeting was held at the end of this week to discuss questions and problems the testers had encountered during their practice sessions, and standardised solutions to these problems were agreed upon. Times were arranged

to observe each tester individually administering both the Veroff and Stanford-Binet measures to a 4-year-old. Again, all 3 testers proved qualified, with minor corrections, to give these measures to the children.

Coders: Father-Child Interactions: A total of 3 women were trained to code the observations of father-child interactions. The two research associates originally with the project listened to tapes from the pilot study (Radin, 1972) using a similar interview, that had been done three years previously. Using written descriptions of the scoring categories, as well as the actual scoring done by other observers on the pilot project, the two research associates were able to clarify the category definitions, make minor changes in the category system and agree on the scoring procedures (Radin & Epstein, 1973, appendix A). The two observers then listened to 10 pilot tapes not heard previously, from both social classes, and scored them independently. Reliability was computed using Cartwright's Alpha (1956):

$$\frac{\text{Number of agreements}}{\text{number of agreements} + \text{number of disagreements}}$$

The number of agreements & disagreements in each category for each subject were added and used in the above formula to yield the percentage of agreement between the two coders on each protocol. Observer reliability ranged from 78% to 95%, with the average reliability being 88.9%.

Subsequently, a research assistant was also trained by one of the research associates to code the father-child observations. She was provided with written descriptions of the revised coding system, and she and the trainer listened to and discussed how to code tapes made in the initial months of the current study. The research assistant then independently coded 12 tapes she had not heard before, which had been previously coded by the trainer. Inter-observer reliability was again computed using Cartwright's formula, and ranged from 73.1% to 96.6%, with the average reliability being 87.4%.

Scores: CHES: A total of 3 women were trained to score the Cognitive Home Environment Scale (CHES), a questionnaire given during the interview probing attitudes, home activities and possessions related to education (Radin & Sonquist, 1968). The two research associates originally with the project examined CHES protocols from the pilot study (Radin, 1972). Using written descriptions of the scoring criteria, as well as the actual scoring done by the interviewer in the pilot project the two researchers discussed and agreed upon scoring decisions. They then scored, independently, 10 CHES protocols from middle- and lower-class families in the pilot study which they had not examined previously. Inter-observer reliability was again computed using Cartwright's formula, and ranged from 82% to 98% with an average of 92.3%.

Subsequently, a research assistant was also trained by one of the research associates to score the CHES questionnaire. She was given written criteria for scoring the instrument, and she and the trainer examined scored protocols from CHES questionnaires administered during the early months of the current study. The research assistant then independently scored 11 CHES questionnaires she had not seen before, which had been previously scored by the trainer. Inter-observer agreement, based on Cartwright's formula, ranged from 84% to 100%, and averaged 94.9%.

Coders: Open-Ended Questions: A coding manual for coding the open-ended questions on the interview was devised by one of the research associates (Radin & Epstein, 1973, pp. 13-21). She then distributed this manual to two female research assistants, and they all examined interview protocols from the current study and discussed how the relevant items should be scored. The two research assistants then independently coded the open-ended questions on 5 interviews which they had not seen previously, which had already been coded by the trainer. Cartwright's formula was again used to compute inter-

observer reliability. Agreement between the trainer and the first research assistant ranged from 94.6% to 98.2% and averaged 97.0%. Between the trainer and second research assistant, the range was 83.9% to 100% and the average was 92.8%. Finally, agreement between the two research assistants was 83.9% to 98.2%, with an average reliability of 91.8%.

Coders: Games Interactions: A category system slightly revising that used by Stinson (1972) was developed by one of the research associates (Radin & Epstein, 1973, Appendix C). Written descriptions of the categories and directions for coding the games were given to a research assistant and she and the trainer then listened to and discussed how to code games interactions on tapes made in the early months of the current study. The research assistant then independently coded 10 tapes she had not heard before, which had been previously coded by the trainer. Inter-observer reliability was again computed using Cartwright's formula, and ranged from 69.8% to 90.4%, with the average reliability being 82.9%.

Scorers: Piaget: Originally one of the research associates was trained by DeVries (1971) to score the Piagetian tasks, based on the author's scoring criteria. Because the tasks had not been used with 4-year-olds previously, a number of the children's responses could not be scored with the existing criteria. Questions about how to score these responses were discussed in correspondence between the research associate and DeVries, and the decisions were incorporated into the final coding manual for scoring Piaget Performance (Radin & Epstein, 1973, Appendix D). In addition, the research associate devised a category system, based on DeVries' scoring procedures, for coding the children's explanations of their choices or responses on the 8 tasks. The descriptions for this category system, titled Piaget Verbalizations, are also included in the above mentioned Appendix

1 A research assistant who was also a Piaget tester, was later trained by the Research Associate to score the Piaget tasks. She was given written criteria for scoring Piaget Performance and Piaget Verbalizations, and she and the trainer examined scored protocols from Piaget testing done in the early months of the study. The research assistant then independently scored 6 Piaget protocols she had not seen before, which had been previously scored by the trainer. Inter scorer reliability was computed using Cartwright's formula. For Piaget Performance, reliability ranged from 95 % to 100% and averaged 97.3%. For Piaget Verbalizations, reliability ranged from 91.0% to 100 %, with an average of 95.3%.

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OBSERVED PATERNAL BEHAVIOR AND THE INTELLECTUAL FUNCTIONING
OF PRESCHOOL BOYS & GIRLS

by

Norma Radin and Ann Epstein

Paper presented at the meeting of the Society for Research in Child
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TM 009530

Despite the importance attributed to fathers in the development of young children by a variety of theorists (Sears, 1953; Kagan, 1958; Mussen, Conger, and Kagan, 1963; Lynn, 1967; Biller, 1971) until the last few years there were relatively few natural observational studies of paternal behavior with preschoolers. Among the investigations which did include observations of fathers at home with young children were those by Baumrind (1971), Lytton (1973), and Fagot (1974). However, none of these studies involved lower class families. There is clearly a gap in the research literature.

There is no real disagreement among authorities in the field that fathers are critical in the socialization process. Blanchard and Biller (1971), McCord and McCord (1966), Grunebaum, Hurwitz, Prentice and Sperry (1962), Payne and Mussen (1965), Kagan (1958), Johnson (1963), Torgoff and Dreyer (1961), Dyk and Witkins (1965), Hetherington (1972), Paderson and Robson (1969), and Lynn (1974), as well as the previously cited researchers have emphasized the role fathers play in the development of sex-role identification, cognitive competence, and/or adaptive social behavior. Not readily available, however, is a reliable, inexpensive method for observing fathers interacting with their young children when other family members are not present to influence the behaviors, a method not dependent on observer's subjective assessments or post-observation recall. Above all, a tested methodology is needed which is acceptable to diverse social classes so that researchers will not be confined to investigating middle class families or university populations. A procedure used by the senior author in a pilot investigation of fathers and sons (Radin, 1972) appeared to meet these criteria but lacked a test of reliability, and a factor analysis of the observed behaviors, and also involved some deception. To overcome these defects and gather data about paternal interactions with daughters as well as sons, the study to be described below was conducted.

An additional objective of the investigation was to determine the observable father behaviors associated with intellectual competence of preschool-aged boys and girls from lower-, working-, and middle-class intact families. Based on the theories of Sears (1953), Kagan (1958), Mussen, Conger, and Kagan (1963) and Payne and Mussen (1956), it was suggested that paternal warmth facilitates identification with the parent, or attempts to be like the father. These efforts may involve incorporating the father's values and ideas into the child's thinking, and imitation of the father's behaviors, including those related to problem solving and mastery of the environment. The identification process may therefore act as a stimulant to intellectual functioning in the preschool child. Although there is likely to be more imitation of the same-sex parent as Mussen et al (1961) and Kohlberg & Zigler (1967), have pointed out, theories of identification (Sears, 1953; Kagan, 1958; and Gewirtz and Stengle, 1968), suggest that both boys and girls would tend to identify with a nurturant father. Further, there was no reason to believe that this phenomenon would not apply in diverse social classes. No attempt was made to assess identification by the child per se, as intensive studies such as that by Sears, Alpert, and Rau (1965) have found identification as a unitary construct virtually impossible to observe or measure. Radin's (1972) pilot investigation had used the IT Scale (Brown, 1956) in an attempt to tap father identification through sex role preference. However, no significant correlations were obtained between paternal behavior and IT Scale score. It was therefore concluded that the IT Scale was not useful for the desired purpose. Although some researchers (Hetherington and Frankie, 1967) have used imitation as a measure of identification, it was decided in this investigation to focus on the cognitive measures of the child, and on father behaviors, and to use identification only as a hypothetical explanatory variable.

There is theoretical justification for assuming that a second intervening

variable in addition to identification links paternal warmth and child's intellectual competence. Piaget (1962) and Piagetian theorists (Furth, 1970; Kamil, 1971) have stressed the importance of exploration and acting on the environment in cognitive development of the young child. If the youngster perceives the environment as rewarding, he/she is likely to explore it further. It is not unreasonable to assume that the preschool child who has been frequently reinforced by an important part of the environment, that is, his/her father, will perceive the environment as gratifying. The child may then seek to interact with other aspects of the milieu in anticipation of finding them equally rewarding and responsive. Thus paternal warmth should foster motivation to master the environment (Veroff, 1965; Goldschmid, 1968). This motivation should in turn enhance cognitive functioning, in both boys and girls, and in all social classes.

Combining all of the above, the objectives of the study can be delineated as follows: 1) to develop more fully a methodology for observing fathers interacting with their preschool child under natural conditions at home when other family members are not present; 2) to test the hypotheses that there is a positive, significant correlation between observed paternal nurturance and cognitive measures of four-year-old boys and girls in the middle, working, and lower class, and that motivation to achieve is one mediating variable between observed paternal nurturance and the child's cognitive competence. Paternal restrictiveness was also explored, but no hypotheses were generated concerning this variable as it might be seen as a power-assertive technique which hinders the identification process (Hoffman, 1970) or as evidence of power in the object of identification and hence facilitative of identification (Kagan, 1958; Mussen and Distler, 1960). Pragmatic factors precluded conducting the entire study with both a black and white sample. The study was therefore confined to a white population to eliminate race as a contaminating variable.

Method

One hundred and eighty white, intact families from seven cities in Michigan were studied. The names of 4-year-old subjects who would be eligible for kindergarten the following September were obtained from 12 elementary schools which had preschool programs or older siblings enrolled and information about younger children in the family. Letters were sent from the school principals, as well as from the senior author, inviting families to participate in a study of father-child relations. The father was subsequently telephoned by a male interviewer on our staff. If the father agreed to participate, an interview was scheduled. Almost 80% of the families contacted agreed to be part of the project, and most of those who refused said it was lack of time which prevented their participation as they held two jobs. Based on demographic data obtained during the interview, families were subsequently classified as middle-class, working-class, or lower-class. The Hollingshead (1957) Two Factor Index of Social Position was utilized to determine social class status on the basis of level of education attained and occupational status of both parents. There were no significant social class differences in the percentage of refusals. The final sample consisted of 37 middle-class boys, 28 middle-class girls, 39 working-class boys, 32 working-class girls, 23 lower-class boys, and 21 lower-class girls.

The interview was conducted in the subject's home. As requested in the phone call by the interviewer, only the father and the child were present in the room with the interviewer during this time. It was found that mothers were delighted to have a free evening. All verbal and nonverbal behaviors of the father toward his child were recorded with the father's permission. The father was given full information about the study as a pretest of 20 families had indicated that there were no significant differences in father behaviors when he was told or not told that his behaviors were being observed

during the home visit. The verbal interactions were recorded on a Sony tape recorder and the nonverbal interactions were included in the notes taken by the interviewer during the session. Discussions with the father took between one and one and one-half hours. The interactions between the father and child taking place during the thirty minutes of the interview with the most father-child interactions were subsequently scored according to the 26 behavioral categories (Radin & Epstein, 1973). These included such behaviors as verbal reinforcement, fully meeting child's explicit needs, asking information of child, etc.*

The interview included the administration of the Cognitive Home Environment Scale (Radin & Sonquist, 1968)(CHES), a semi-structured questionnaire measuring the degree of cognitive stimulation in the home, and a shortened version of the Torgoff Parental Developmental Timetable (Torgoff, 1967; Stinson, 1972) which asks parental views about the appropriate age that children should master specific tasks and have freedom to engage in specific behaviors. Results of the CHES and Torgoff data are reported elsewhere (Epstein & Radin, 1975; Jordan, Radin & Epstein, in press). In addition, the interview contained a number of questions designed to elicit demographic data and supplemental information on fathers' child-rearing behaviors and attitudes. At the end of the interview, for exploratory purposes, the interviewer gave the child a number of puzzles of graduated difficulty to complete and told the father he could assist the child if he wished. The results of these findings are reported elsewhere (Radin & Epstein, 1975).

 *The other behavior categories were: consulting; ordering with explanation; preventive warning; bribing; psychological manipulation; preventive manipulation; correcting; partially meeting explicit needs; not meeting explicit needs; initiate conversation; stops talking to listen; continues talking; meeting other implicit needs; expressing affection; sharing; requesting; aversive ordering without explanation; non-aversive ordering without explanation; threatening; other aversive verbal behavior; aversive non-verbal behavior; physically stops the child.

to test the reliability of the observational data, a second interview was carried out with 20 fathers picked from all three classes, who agreed to participate in another interview within 1 month of the initial interview, with their son or daughter present. The mean frequencies of the 26 father behaviors on the first and second visits were compared using t-tests. No significant differences were found in behavioral frequencies.

Within a few weeks of the interview, families were re-contacted and appointments made to have their children participate in two individual testing sessions. Fathers had been told that this procedure would be followed. The testing sessions were generally held at the school where the children would be attending kindergarten. In the first session, a series of 8 Piagetian tasks developed by Rheta DeVries (1971) was administered. (Detailed instructions for scoring the tasks can be found in Radin & Epstein, 1973). In the second testing session, the Stanford-Binet Intelligence Scale was given. After the intelligence test was completed, but before an IQ was computed, the testers rated each child on the 13 items on the face sheet of the Binet booklet, e.g., desire to continue, challenged by tasks, using a four-point scale (Epstein & Radin, in press). The mean of these 13 ratings yielded a measure entitled Motivation to Achieve While Taking the Binet (Radin, 1971; 1974). Details of the findings concerning this rating are reported elsewhere (Epstein & Radin, 1975).

The above instruments were administered by trained testers. All were white and between 25 and 35 years of age. There were 2 men and 10 women. A different tester administered the instruments in each of the two sessions.

To determine the reliability of the scoring procedures for the observations, inter-rater reliability was computed using Cartwright's Alpha (1956), which yields the percentage of agreement between two scorers. Three researchers independently scored the protocols of between 10 and 20 subjects.

Reliability between the first and second coder averaged 88.9%; reliability between the second and third coder averaged 87.4%. Inter-rater reliability in scoring children's performance on the Piagetian tasks averaged 97.3%. In addition, a category system was devised (Radin & Epstein, 1973), based on DeVries' scoring procedures, for scoring the children's explanations of their choices or responses on the 8 tasks. For this measure entitled Piaget Verbalizations, reliability averaged 95.3%.

The performance score consists of the average of the child's performance across all 8 tasks (conservation of length, of mass, of number, etc.). The Binet IQ scores were computed according to the new 1972 norms.

To determine the factorial structure underlying the observed father behaviors with children of each sex, the principal components were extracted and a varimax rotation was performed with the 26 father-child interaction categories. The Scree test (Cattell, 1966) was used as a guide to determine the number of factors to rotate to obtain the simplest factorial structure. Coefficients of congruence were computed between father-son behavior factors and father-daughter behavior factors and the methodology of Schneewind and Cattell (1970), used to determine the significant correlations among the factors. Since the method did not permit observing and coding child behaviors as the youngster either was too far from the microphone or did not articulate clearly, a measure related to the child's initiating interpersonal behaviors was computed by adding the frequencies of the five father-child categories where paternal behavior was clearly in response to the child's directing an activity specifically towards the father. The items included were (1) fully meeting explicit needs (2) partially meeting explicit needs (3) not meeting explicit needs, (4) stops to listen when child talks, and (5) continues talking when child talks. This measure was labelled "Child Initiates".

One-way analyses of variance were computed for each factor that emerged for each sex of child to determine if there were any social class effects on factor scores. In addition one-way analyses of variance were computed for each of the 26 behavior categories and for the variable "Child Initiates" to determine if there were significant sex differences. Two-way analyses were computed for the SB motivation score and the three cognitive measures to determine the impact of sex and social class on the scores. Pearson coefficients of correlation were computed between observed father factor scores for each sex and for the three cognitive measures: Stanford Binet IQ, Piaget Verbalization Score, and Piaget Mean Total Performance Score. Further, to predict the three cognitive measures for each sex and each social class subgroup, stepwise multiple regression equations were computed using Binet IQ, Piaget Verbalization Score and Piaget Mean Total Performance Score as the dependent variables and observed father behavior factors and demographic data as independent variables. (No regression equations were computed for social class as different father behavior factors emerged for each sex).

Finally, to determine if motivation to achieve was a mediating variable between observed father factors and cognitive measures, partial correlations were computed when a significant correlation was obtained between these variables, controlling the motivation factor.

Results

Table 1 presents the simplest factorial structure obtained when observed father behaviors with sons was factor analyzed. As can be seen from the table, 4 factors emerged which were labelled: (1) Positive Response to Child and Cognitive Stimulation (meeting the expressed needs of the child such as hunger, involving the child in the interview by asking him questions, and praising the child's behaviors); (2) Empathy and Psychological Manipulation (consulting with the child to determine his wishes, and meeting the unexpressed needs of the child, e.g. getting a pillow for the child who yawned and rubbed

his eyes); (3) Preventive and Physical Control (warning the child beforehand not to do something or physically reacting to the child's actions in an aversive manner); (4) Verbal Restrictiveness (giving orders to the child in an aversive or non-aversive manner without explanations, threatening him, or directing other aversive statements to the child such as name-calling).

Table 2 presents the simplest factorial structure obtained when observed father behavior with daughters was factor analyzed. In the table appear the titles given to the 6 factors which emerged: (1) Meeting and Ignoring Explicit Needs (both meeting the expressed needs of the child, while at other times ignoring or refusing to meet these needs); (2) Aversive and Non-Aversive Control (structuring the environment to prevent unwanted behavior and providing an explanation whenever an order was given, but also threatening the child); (3) Verbal Restrictiveness and Requesting (giving orders without explanations to the child in an aversive or non-aversive manner, addressing other aversive statements to her, or requesting in a kind or neutral voice that the child do something for the father); (4) Empathy and Cognitive Stimulation (consulting, coaxing, meeting the child's implicit needs, and praising her behavior); (5) Attention to the Child's Verbalizations (correcting the child's errors, and stopping his own talking to listen to his daughter's conversations); (6) Physical Restrictiveness (physically reacting to the child's actions in either a neutral or an aversive manner).

It is noteworthy that while the first two factors found for boys can be regarded as nurturant and the other two factors as restrictive or controlling, only the last three factors for girls are clearly nurturant (#'s 4 and 5) or restrictive (#6). The first three factors of fathers' interactions with girls contains "mixed messages", in that they each combine both nurturant and supportive behaviors with restrictive and punitive elements. Only two significant coefficients of congruence were obtained out of 24 possibilities

when the 6 observed father behavior factors with girls were inter-correlated with the 4 observed father behavior factors with boys. The boys' factor Verbal Restrictiveness was significantly correlated with the girls' factor Verbal Restrictiveness and Requesting. In addition the boys' factor Empathy and Psychological Manipulation was significantly associated with the girls' factor Empathy and Cognitive Stimulation. Thus it appears that a fundamentally different factor structure underlies observed father behaviors with boys and girls.

In spite of the difference in factorial structure, the frequencies of only two of the 26 father-child behavior categories showed significant sex differences when one-way analyses of variance were performed. Partially Meeting Explicit Needs and Non-Aversive Ordering Without Explanation were significantly higher in boys than girls. Figure 1 presents the frequency of each of the behavior categories for boys and for girls.

In Table 3 are presented the results of the one-way analyses of variance for father factors examining social class effects. As can be seen in the table, lower-class families had significantly lower frequencies of Positive Response and Cognitive Stimulation when compared to middle- and working-class families. In addition, lower-class fathers displayed less Empathy and Psychological Manipulation towards sons than working-class fathers. For girls' father factors, the middle class was significantly higher than the working class on Meeting and Ignoring Explicit Needs while lower-class fathers showed more Attention to Child's Verbalizations than did fathers of working-class girls.

No significant sex or interaction effects emerged in the two-way analyses of variance performed on the three cognitive measures. IQ, Piaget Verbalization and Piaget MTP. There were significant social class effects in Binet IQ and Piaget Verbalization scores however. Post-hoc analyses indicated

that middle-class children scored significantly higher than lower-class children on Piaget Verbalizations and higher than both working-class and lower-class children on the Binet IQ. For mean Motivation While Taking the Binet, there were neither sex, social class, nor interaction effects. Insofar as the variable "Child Initiates" was concerned, boys scored significantly higher than girls.

Table 4 presents the significant correlations obtained between observed father behavior factors and cognitive measures for each sex and each sex-social class subgroup. As the table indicates, the boys' father factor Positive Reinforcement and Cognitive Stimulation was significantly correlated with IQ for all boys and for middle-class boys. This same factor was also significantly correlated with Piaget Verbalizations for all boys and middle-class and working-class boys. Boys' factor Preventive and Physical Control was negatively correlated with IQ in middle-class boys, while the factor Verbal Restrictiveness was negatively correlated with Piaget Mean Total Performance and Piaget Verbalizations for lower-class boys. No significant correlations were found between father factors and cognitive measures for girls as a whole or for middle-class or for working-class girls. One significant correlation was found between girls' father factor Meeting and Ignoring Explicit Needs, and Piaget Mean Total Performance in lower-class girls. However, as this was the only significant correlation among the 54 computed for the girls' subgroups, the significant association may have occurred by chance.

In Table 5 appear the results pertaining to the multiple regression equations. For boys as a whole, a significant multiple R was obtained when IQ and Piaget Verbalization were the dependent variables. The first and only significant variable to enter the equations in both cases was the father factor, Positive Response to the Child and Cognitive Stimulation.

None of the other predictor variables significantly increased the multiple R. For girls as a whole, a significant multiple R was obtained for all three cognitive measures. In each case, the first predictor variable was father's occupation. Again, the percent of explained variance, multiple R squared, was not significantly increased by any of the other predictor variables. For middle-class boys, Preventive and Physical Control with a negative relationship, and Positive Reinforcement and Cognitive Stimulation with a positive relationship, together accounted for 30% of the variance in Binet IQ. Further, for middle-class boys, Positive Reinforcement and Cognitive Stimulation with a positive association, and Empathy and Psychological Manipulation with a negative relationship together explained 25% of the variance in Piaget Verbalization scores. For lower-class girls, with Piaget MTP as the criterion variable, there were two significant predictors, both negatively related, Meeting and Ignoring Explicit Needs and Aversive and Non-Aversive Control. These two father behavior factors together with one suppressor variable (the factor Physical Restrictiveness) accounted for 49% of the variance in Piaget MTP results.

The results of the partial correlations appear in Table 6. For all boys, middle-class boys and working-class boys, motivational measures derived from the Binet face sheet acted as intervening variables in the positive relationship between boys' father factor Positive Reinforcement and Cognitive Stimulation, and the sons' cognitive competence. In addition, for middle-class and lower-class boys, Binet-derived motivational assessments mediated the negative correlations between intellectual measures and boys' father factors, Preventive and Physical Control and Verbal Restrictiveness. The motivational measure did not intervene in the single significant correlation found for the subgroup of lower-class girls.

Discussion

Insofar as the objective, the developing of a reliable, inexpensive methodology for observing father behavior under natural conditions is concerned, it appears to have been attained. The technique of observing fathers interacting with preschool children at home with no other family member present was found to be relatively inexpensive, acceptable to 3 social classes, and reliable in terms of collection of data and in coding of data. The procedure should be useful to those interested in father behavior as a dependent or independent variable, e.g., as a consequence of unemployment or a cause of child aggression. It should be noted that paternal interactions with preschool children would quite likely be different under different circumstances in the home. An analysis of observational data obtained at the end of the interview when the father was observing his child trying to complete a task indicated that there were low, although significant correlations with paternal behaviors during the interview when the child was not engaged in a mastery effort and the father was focused on the youngster (Radin & Epstein, 1975). Even more important, the correlational pattern between child cognitive measures and observed paternal behaviors when the child was completing a task was completely different than the pattern reported in this paper. Thus, although it can be said that a methodology has been developed for observing fathers at home interacting with preschoolers when other members of the family are not present, one cannot assume that this observational technique represents a sampling of all father behaviors under those circumstances. The problem of sampling is endemic to ethological techniques, as Lytton (1971) has pointed out. Thus in addition to the differential behavior observed in laboratory and home setting described by Lytton (1973), one must be aware that there is differential behavior within

the home given different conditions, even when the individuals present are held constant. However, to obtain information about paternal behavior when the father is distracted by other activities, a condition not atypical in the average home, it can be said that a reliable, easily implemented procedure has been developed in this investigation.

The hypotheses concerning significant relations between nurturant paternal behavior and child cognitive measures was supported, but only for boys, and for middle- and working-class boys. These findings are in keeping with those obtained in the pilot study for the project (Radin, 1972), and with results found by Pederson, Rubenstein, and Yarrow (1973). For boys as a group, and for each class subgroup of boys, there was at least one observed father behavior factor which correlated significantly with a cognitive measure. For middle-class boys, two significant factors were obtained which together accounted for almost one-third of the variance in the child's IQ. The usual social class indicators were essentially irrelevant in predicting boys' cognitive scores; it was paternal behavior that was more critical. It must be acknowledged that the causal direction may be reversed, as Bell (1968) and Ososky & O'Connell (1972) have stressed; the children's cognitive ability may be eliciting specific types of paternal behaviors. It is also possible that a third variable is causing both father and child behavior and/or that the effect is circular with both father and son affecting one another's behavior. The question cannot be settled in a correlational study such as this. It does seem legitimate to hypothesize, however, that the father's behavior was having some influence on the child's cognitive competence.

Although father behavior can be said to be significantly associated with cognitive competence in four-year-old boys of all social classes, there were sharp differences in the type of paternal behavior which was

found to be important in the lower class as contrasted with the middle and working class. For the lower class, only the absence of verbal restrictiveness, fostered cognitive functioning. No set of behaviors enhanced cognitive performance. The fact that there was no significant difference in the amount of verbal restrictiveness present in the three classes highlights the unique pattern present in the lower class.

Perhaps the role played by paternal verbal restrictiveness can be better understood if examined in the light of the set of behaviors labelled Positive Response to Child and Cognitive Stimulation. For this factor, there were significant class differences in number of behaviors observed. As was found by Sears, Maccoby and Levin (1957), Kamii (1965), and in the pilot study (Radin, 1972), the lower class had significantly fewer behaviors of this type than either the middle or working class. This finding, combined with the positive association between these nurturant behaviors and cognitive measures in the middle-class and working class suggests that there may be a floor below which paternal nurturance has no effect. A certain minimum amount may be needed to influence cognitive functioning in the child or to influence the mediators between paternal behavior and cognitive competence of the preschooler. An alternate explanation is that other class-linked variables such as hunger, crowding, poor health and norms valuing physical prowess over intellectual pursuits may dilute the positive relationship between paternal warmth and the cognitive functioning of the young boy in lower-class families. Thus sufficient nurturance may be present but its effect may be counteracted in certain contexts. The data also suggest that the impact of restrictiveness may be affected by its context in which it is embedded. In the lower class where there is less positive responsiveness or nurturance for the four-year-old boy, restrictiveness may have a detrimental effect on the youngsters' intellectual functioning. In the middle and

working class where there is more paternal warmth and stimulation, an equal amount of restrictiveness may be innocuous.

The factor Positive Responsiveness and Cognitive Stimulation, which proved to be the most important set of paternal behaviors for boys' cognitive competence resembles the growth-producing factor obtained by Clarke-Stewart (1973), who observed lower and working-class mothers interacting with infants up to 18 months of age. The one factor Clarke-Stewart found to be most highly associated with competence in the child included expression of affection, contingent responsiveness, verbal stimulation, stimulation with objects, and acceptance of the child's behavior. Clarke-Stewart labelled this factor "Optimal Care". That label would have been appropriate in this study as well. Yarrow (1963) also found both maternal stimulation and affection were related to IQ in adopted infants. Another way of conceptualizing the factor Positive Response and Cognitive Stimulation is to perceive it as a combination of what Hoffman (1970) has referred to as induction, plus affection. The data from this investigation suggest it would be difficult to separate these paternal behaviors with four-year-old boys; warmth and intellectual stimulation seem to be inherently linked.

The hypothesis that motivation to achieve would mediate the relationship between paternal behavior and boys' cognitive measure in all social class was partially confirmed. Motivation, as assessed by behavior while taking the Stanford Binet, mediated the relationship between intellectual scores and paternal responsiveness for all boys, and for working-class and middle-class boys. In all of the above instances, paternal nurturance enhanced the boys' motivation to achieve or master the task before him, and this enhanced motivation in turn enhanced his score. When the motivation factor was controlled, there was no longer any link between father and son

behaviors. Motivation also mediated the negative relationship between IQ and paternal controlling behavior in the middle class, and between Piaget MTP and paternal restrictiveness in the lower class. Here the linkage functioned somewhat differently. These paternal behaviors reduced the child's motivation, and this diminished motivation reduced the cognitive score. It appears that there is a type of mastery motivation which is responsive to father behavior and which affects the child's cognitive performance. There were, however, associations between paternal behavior and cognitive scores of sons not mediated by the mastery motivation factor. Thus it appears that motivation is only one mediator of the relationship between paternal behavior and intellectual functioning of the preschool boy. Possibly another relates to the degree of identification with the father, a variable not explored in this study.

The fact that the motivation measure employed in this study yielded meaningful data with all three cognitive scores, including two which were administered in a different week and by another examiner suggests that the items on the face sheet of the Binet may be a fruitful technique of tapping the child's adaptive responsiveness to tasks put before him. Motivation While Taking the Binet warrants further exploration with other age groups and other populations.

The hypothesis regarding the relationship between paternal behavior and the cognitive competence of four-year-old girls was essentially disconfirmed. There was only one significant association between an observed father factor and an intellectual score for girls, and this may have well been due to chance factors. The regression equations did suggest that some paternal behaviors might affect the cognitive functioning but the presence of suppressor variables makes the relationship tenuous. For example, it was

only when one father factor was held constant in the middle class and working class, that any father factor became a significant predictor. The more outstanding finding emerging from the regression equation involving girls was that there was one significant predictor for all girls with all three cognitive measures and that was father's occupation. The higher the status of the occupation, the higher the girl's score. This finding tends to support Bayley and Schaefer's (1964) view that this may be a genetic factor influencing girls' intellectual abilities which is not operative with boys. In this day of automatic promotions and pressures to stay in school, educational level may be less reflective of inherent ability than occupational level.

Whether or not a genetic factor is affecting girls more than boys, an examination of the factor structure undergirding observed father behavior with daughters sheds some light on the seeming disconnection between a father's behavior and his daughter's intellectual functioning. Over half of the explained variance and 1/3 of the total variance in father behavior with girls was accounted for by mixed messages. For boys, all four factors reflected either clearly nurturant or clearly restrictive messages with the two restrictive factors being detrimental to the child's cognitive functioning and one of the nurturant factors appearing to be enhancing. For girls, the one restrictive factor did no harm; the two nurturant factors did not help cognitive development. Perhaps the ambivalent messages tended to alienate the girl from her father so that his other unambivalent behaviors neither helped nor hurt her. These findings are all the more provocative in view of the fact that only two of the individual 26 father behaviors coded showed significant sex differences. It was clearly the clustering that differed in father behavior with sons and daughters, not specific frequencies.

The finding that there were virtually no predictors of girls' cognitive functioning except father occupation, a structural, non-explanatory variable, leads to speculation about other factors that might be having a positive influence on the young girls' functioning. There is ample evidence from the literature to suggest that four-year-old girls are using their mothers as the prime model. Radin's (1974) previous study of mothers, using a methodology similar to that employed in this investigation, indicated that maternal nurturance is associated with cognitive competence in pre-school daughters but not in preschool sons. These findings dovetail with those obtained in the current study. Hetherington and Frankie (1967) found that nursery and kindergarten-aged girls imitated their mothers more than their fathers. Further, an investigation by Lynn and Cross (1974) indicated that 4-year-old girls preferred to play with their mothers, in contrast with 2 and 3-year-old girls who preferred their fathers. Lynn & Cross attributed this finding to pressure on 4-year-old girls to be concerned with their sex role but felt more research was needed to determine the underlying cause of this pressure. Perhaps the mixed message coming from fathers of these youngsters is a relevant factor.

Although mothers were not included in this investigation, there was indirect evidence from the data suggesting that the girls were indeed modeling their mothers and highly influenced by them. One of the factors on the Cognitive Home Environment Scale, the instrument administered during the interview, provided some clues. The factor was labelled Mother Stimulates (the other four factors obtained all pertained to fathers. They were Future Expectations for Child, Grades Expected, Father Stimulation, and Use of External Resources.) The three items with the highest loadings on the Mother Stimulates factor were Educational Gifts purchased, Craft Items in the Home, and Mother Assists the Child to Learn. When the Mother

Stimulates factor was correlated with Binet IQ of the child, one significant correlation was obtained; for middle-class girls there was a positive correlation of $.47(p < .001)$. For all other groups the correlation was below .19. Similarly there was only one significant correlation between Mother Stimulates and Piaget Verbalization: for lower-class girls there was a positive correlation of $.46(p < .05)$. For all other groups the correlation was below .21. Thus it appears that mothers are differentially enhancing the intellectual growth of their daughters. Since there were no significant sex differences in the factor, it is unlikely that mothers are trying to stimulate daughters more than sons. Rather, the impact is different. Further, in only one subgroup was the factor Mother Stimulates significantly correlated with the variable Child Initiates. For middle-class girls the correlation was $.46(p < .01)$, suggesting that middle-class assertive girls may be modeling their initiating mothers. This interpretation would be in keeping with the Robinson and Robinson (1968) interpretation of the Fels study data where an inference was made that achieving girls identify with their accelerating, somewhat aggressive mothers.

Finally, when regression equations were computed using the cognitive measures as dependent variables and the father factors, demographic data, and Cognitive Home Environment factors as independent variables, the factor Mother Stimulates was a significant predictor for girls' groups, not for boys' groups. With Binet IQ as the dependent variable, Mother Stimulates was the first and only significant predictor for middle-class girls. With Piaget Verbalizations as the dependent variable, Mother Stimulates was the first significant predictor to emerge for lower-class girls and the only factor with a positive beta weight.

From the above discussion it appears that fathers have little influence

on their daughters except possibly through ~~their~~ ambivalent behavior to encourage the child to find another model with which to identify. However, a second CHES factor, Future Expectations, suggested that the father may influence his daughter indirectly, through his impact on his wife. Although virtually no father behavior was significantly associated with girls' intellectual scores, fathers' expectations for the child correlated significantly with Binet IQ for all girls and with Binet IQ and Piaget Verbalizations for working-class girls. In addition, in the regression equations which included CHES factors, father behaviors and demographic data, Future Expectations was the only significant predictor of IQ for working-class girls, and the first significant predictor to emerge when Piaget Verbalization was the dependent variable. Thus it appears that paternal expectations, but not behaviors, affect their daughters' cognitive competence. Possibly, the father with high expectations for his daughter communicates this fact to his wife and she in turn modifies her behavior and becomes a more stimulating parent and model. Mothers may therefore serve as the mediator of paternal influence on four-year-old girls. Hetherington (1972) refers to the mother as the mediator of the effect of father absence on daughters' behavior with men. Hoffman (1970) describes the mother as the mediator of paternal power-assertiveness techniques. In this instance the maternal mediating effect is seen in a more positive light.

One issue which was not answered in this study was why fathers behave in an ambivalent way with their daughters and not their sons. Several hypotheses were tested and found unsupported. The possibility that fathers do not understand girls and do not know how to interact with them was tested by comparing the behavior factor scores of fathers of girls who had old

daughters with the scores of fathers of girls without older daughters. There were no significant differences. The variable Child Initiates did show sex differences with boys having higher scores, but it is not clear why less assertive behavior by girls should foster paternal ambivalence.

The only tentative explanation that did emerge from the data was that middle- and working-class fathers appeared to have ambivalent attitudes toward assertive initiating girls. For example, in the middle class, the CHES factor, Future Expectations, was negatively correlated with the father behavior factor Attention to the Child's Verbalization, whereas his future expectations for his daughter were not related to any cognitive measure. Thus, the girl who talks a good deal, regardless of her ability, was expected to have a limited future in the middle class. A similar picture emerged in the working class. Girls who made more explicit demands, or were more assertive, were also seen as having poor future prospects. This inference was made from the negative significant correlation obtained between the father behavior factor Meeting and Ignoring Explicit Needs and the CHES factor Future Expectations. In contrast, Meeting and Ignoring Explicit Needs was positively correlated with future expectations for girls in the lower class at the .001 probability level. Possibly in this socio-economic stratum where women often serve as the major breadwinner, assertiveness is not seen as damaging but rather enhancing of future prospects. In the other social classes, fathers may be conflicted about aggressive daughters, and view their future as dim. This interpretation of fathers' reactions to assertive girls is highly speculative, of course, but the issue warrants further investigation.

In sum, paternal nurturant behaviors were associated with, and perhaps facilitate 4-year-old boys' intellectual functioning while restrictiveness

behavior appears to hinder it. The child's motivation to master tasks is one of the intervening variables in both cases. Paternal behavior appears to have little impact on his daughters' cognitive functioning, possibly because much of his behavior with her contains a mixed message, and this strengthens her tendency to use her mother as her major model. Thus it appears that both the child's sex role and motivation mediate the relationship between paternal behavior and the cognitive functioning in 4-year-old children. The applicability of this conclusion to non-white and non-Anglo populations remains to be tested.

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TABLE 1

Varimax Factor Matrix: Father Behavior with Boys

Variable	Positive Response to Child & Cogni- tive Stimulation	Empathy & Psycho- logical Manipula- tion of Child	Prevention & Physi- cal Control of Child (Physical Restric- tiveness)	Verbal Re- strictiveness	h^2
Verbal Reinforcement	.77	-.09	-.04	-.14	.62
Consulting	-.03	.85	-.01	-.15	.74
Order with Explanation	.60	.07	.09	.25	.44
Preventive Warning	-.00	.02	.76	-.03	.58
Bribing	-.06	.73	.04	.41	.78
Psychological Manipulation	.27	.50	.02	.31	.42
Preventive Manipulation	-.16	-.01	.63	-.07	.42
Correcting	.56	-.12	.11	-.01	.34
Fully Meeting Explicit Needs	.73	-.10	.10	.22	.60
Partially Meeting Explicit Needs	.50	-.04	.33	.17	.39
Not Meeting Explicit Needs	-.02	-.22	.45	.54	.54
Initiates Conversation	.54	.03	-.18	.02	.33
Stops Talking	.67	.01	.10	-.24	.61
Continues Talking	.43	-.01	.22	-.13	.25
Meeting Other Implicit Needs	-.06	.83	.00	.09	.78
Affection	.47	.15	-.04	.08	.26
Sharing	.02	.11	-.04	.30	.11
Requesting	.00	.06	-.12	.24	.07
Asks Information	.47	.05	-.21	-.09	.28
Aversive Order without Explanation	-.04	-.14	.02	.56	.34
Non-Aversive Order without Explanation	-.03	.15	.17	.79	.67
Threatening	.01	.24	-.04	.64	.47
Other Aversive Verbal	.03	-.01	-.05	.52	.28
Aversive Non-Verbal	-.06	-.02	.85	.02	.73
Physically Stops	.27	.04	.48	-.07	.31
(Factor loadings) ² by column	3.60	2.59	2.46	2.51	11.20
% Total Variance Explained	.14	.10	.10	.10	.45

TABLE 2

VARIMAX FACTOR MATRIX: FATHER BEHAVIOR WITH GIRLS

Variable	Meeting & Ignoring Explicit Needs	Aversive & Non-aversive Control	Verbal Restrictiveness & Requesting	Empathy, Psychological Manipulation & Cognitive Stimulation	Attention to Child's Verbalizations	Physical Restrictiveness	h^2
Verbal Reinforcement	.47	.16	-.11	.63	.24	.16	.74
Consulting	-.08	-.13	.22	.50	.03	-.15	.34
Order with Explanation	.06	.78	.14	-.13	.27	.04	.72
Preventive Warning	.17	-.32	.06	-.15	.43	.00	.29
Drinking	-.12	-.06	-.03	.03	-.05	.32	.13
Psychological Manipulation	.24	.48	-.04	.55	.00	.29	.57
Preventive Manipulation	-.15	.89	-.02	.91	-.08	-.19	.85
Correcting	.12	.02	.32	.16	.78	.08	.76
Fully Meeting Explicit Needs	.79	.02	.07	-.11	.28	.04	.72
Partially Meeting Explicit Needs	.56	.05	-.06	.16	.08	-.03	.35
Not Meeting Explicit Needs	.78	.03	.21	.02	-.17	-.05	.68
Initiates Conversation	.35	.08	.12	.67	.32	-.19	.73
Stops Talking	.06	.13	.12	-.04	.75	-.16	.62
Continues Talking	.55	-.04	.02	.06	.31	.09	.42
Meeting Other Implicit Needs	-.04	-.05	.10	.75	-.08	.18	.61
Affection	-.07	-.12	-.11	.37	.46	-.05	.38
Sharing	.06	.05	-.10	.17	.61	.05	.42
Requesting	.46	-.05	.55	.32	-.11	-.14	.65
Asks Information	.13	.07	.43	.57	.04	-.22	.58
Aversive Order Without Explanation	-.04	.09	.91	.04	.03	-.12	.86
Non-Aversive Order without Explanation	.10	.10	.78	.23	-.09	.03	.69
Threatening	.09	.88	.16	.06	-.05	.24	.88
Other Aversive Verbal	.09	.05	.71	-.04	.10	.35	.66
Aversive Non-Verbal	.46	.16	.03	.35	.15	.67	.85
Physically Stops	.10	.13	.08	-.23	.04	.79	.72
(Factor Loadings) ² by column	2.83	2.62	2.77	2.90	2.50	1.73	15.32
% Total Variance Explained	.11	.10	.11	.12	.10	.07	.61

TABLE 3

SIGNIFICANT CLASS DIFFERENCES IN OBSERVED FATHER BEHAVIOR FACTORS

Father Factor	1 st Social Class Subgroup	Mean	SD	2 nd Social Class Subgroup	Mean	SD	<u>t</u>
Positive Response to Child & Cog- nitive Stimulation	MC Boys	30.6	23.7	LC Boys	12.8	10.6	3.34**
	WC Boys	26.6	18.9	LC Boys	12.8	10.6	3.15**
Empathy & Psych- ological Manipula- tion	WC Boys	3.2	5.3	LC Boys	.9	1.2	2.09*
Attention to Child's Verbalizations	LC Girls	2.8	5.2	WC Girls	.7	1.1	2.16*
Meeting & Ignoring Explicit Needs	MC Girls	6.4	7.0	WC Girls	2.4	3.7	2.75**

Note: MC stands for middle class; WC for working class and LC for lower class.

** $p < .01$

* $p < .05$

TABLE 4
SIGNIFICANT CORRELATIONS BETWEEN OBSERVED FATHER BEHAVIOR
FACTORS AND COGNITIVE MEASURES

Cognitive Measure	Sample	N	Father Behavior Factor	Correlation Coefficient
Binet IQ	All Boys	99	Positive Response to Child & Cognitive Stimulation	.25**
	MC Boys	37	" " "	.36*
	MC Boys	37	Preventive & Physical Control	-.41**
Piaget Verbalizations	All Boys	99	Positive Response to Child & Cognitive Stimulation	.38***
	MC Boys	37	" " "	.39*
	WC Boys	39	" " "	.39**
	LC Boys	23	Verbal Restrictiveness	-.45*
Piaget Word Total Performance	LC Boys	23	Verbal Restrictiveness	-.41*
	LC Girls	21	Meaning & Ignoring Explicit Needs	-.50*

Note: MC stands for middle class, WC for working class, and LC for lower class.

*** $p \leq .001$

** $p < .01$

* $p < .05$

TABLE 5

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SIGNIFICANT PREDICTORS OF COGNITIVE MEASURES

IN STEPWISE MULTIPLE REGRESSION EQUATIONS

Dependent Variable	Subgroup	N	Significant Independent Variable	Sign of Variable	Sign	Multiple R	Percent of Var. Exp.
Binet IQ	All Boys	99	Positive Response & Cog. Stim	**	+	.255**	.06
	MC Boys	37	Preventive & Phys. Control	**	-	.411**	.17
			Positive Response & Cog. Stim.	*	+	.546**	.30
Piaget Mean Total Performance	MC Boys	37	Father's Occupation	*	+ ^a	.329*	.11
	LC Boys	23	Verbal Restrict.	*	-	.410*	.17
Piaget Verb.	All Boys	99	Positive Response & Cog. Stim.	***	+	.381***	.14
	MC Boys	37	" "	*	+	.393*	.15
			Empathy & Psych. Manipulation	*	-	.499**	.25
	WC Boys	39	Positive Response & Cog. Stim.	**	+	.388**	.15
	LC Boys	23	Verbal Restrict.	*	-	.477*	.20
Binet IQ	All Girls	79	Father's Occupation	***	- ^a	.411***	.17
Piaget Mean Total Performance	All Girls	81	Father's Occupation	*	- ^a	.227*	.05
	LC Girls	21	Meeting & Ignoring Explicit Needs	*	-	.496*	.25
			Phys. Restrictiv.	b	+	.573*	.33
			Aversive & Non-Aversive Verbal	*	-	.696**	.49
Piaget Verbal.	All Girls	81	Father's Occupation	***	- ^a	.351***	.12
	MC Girls	28	Phys. Restrictive.	b	-	.330	.11
			Father's Occupation	*	- ^a	.505*	.26
			Aversive & Non-Aversive Verbal	*	-	.625**	.39
	WC Girls	32	Meeting & Ignoring Needs	b	-	.263	.07
			Attention to Verb.	*	+	.463*	.19

a) The higher the status of the occupation the lower the rating. The - sign indicates that the higher the status of the occupation, the higher the cognitive measures. A + sign indicates the lower the status, the higher the cognitive measures.

b) A suppressor variable which was not itself significant.

*** $p < .001$

** $p < .01$

* $p < .05$

TABLE 6

PARTIAL CORRELATIONS BETWEEN FATHER BEHAVIOR FACTORS
AND CHILD'S COGNITIVE MEASURES WITH SD MOTIVATION CONTROLLED

Subgroup	N	Father Factor	Cognitive Measure	Initial Correlation	Partial Correlation	(a) z_{N-Y}
All Boys	99	Pos. Response & Cog. Stim.	Binet IQ	.25**	.13	1.27
		" " " "	Piaget Verb.	.38***	.30	3.02***
MC Boys	37	" " " "	Binet IQ	.36*	.27	1.61
		" " " "	Piaget Verb.	.39*	.35	2.12*
		Prev. & Phys. Control	Binet IQ	-.41**	-.32	-1.89
WC Boys	39	Pos. Response & Cog. Stim.	Piaget Verb.	.39**	.29	1.78
LC Boys	23	Verbal Restrictiveness	Piaget Verb.	-.45*	-.47	-2.22*
		" "	Piaget MTP	-.41*	-.40	-1.83
LC Girls	20	Meeting & Ignoring Needs	Piaget MTP	-.50*	-.51	-2.24*

Note: MC stands for middle class, WC for working class, LC for lower class, and Piaget MTP for Piaget Mean Total Performance.

(a) Test for significance of a partial correlation (Hays, 1963)

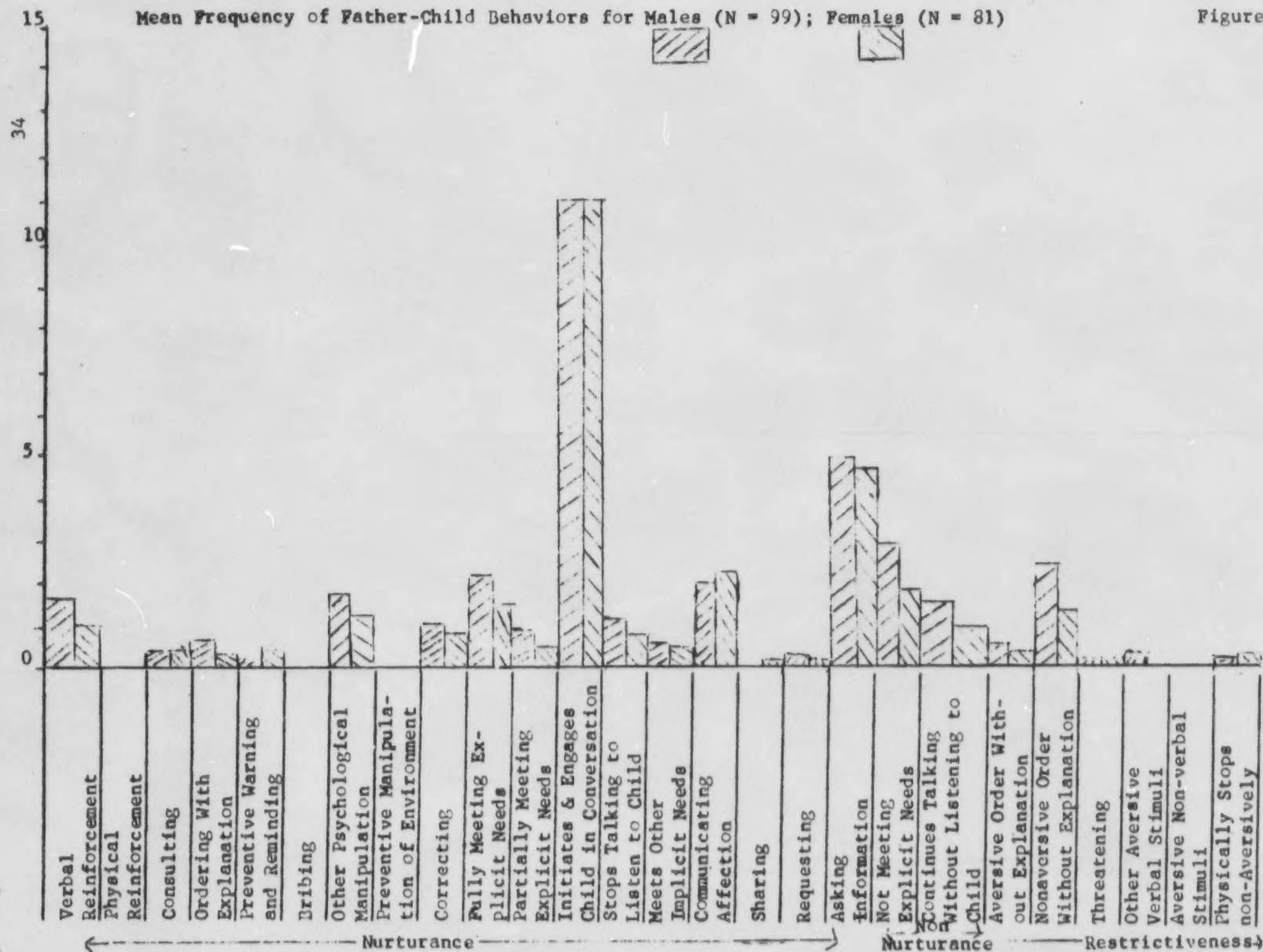
*** $p < .001$

** $p < .01$

* $p < .05$

Mean Frequency of Father-Child Behaviors for Males (N = 99); Females (N = 81)

Figure 1



Paternal Behavior and Intellectual Functioning in Preschool
Boys and Girls

Bonnie E. Jordan, Norma Radin, and Ann Epstein
see Developmental Psychology, 1975, 11: 407-8.

TM 009530

Motivational Components Related to Father Behavior
and Cognitive Functioning in Preschoolers
Ann S. Epstein and Norma Radin

see Child Development, 1975, 46: 831-39.

TM 009530

Paternal Questionnaire Data and the Preschool Child

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TM009530

ABSTRACT

A questionnaire previously employed with mothers was administered to 180 white fathers of four-year-old children in the lower, working, and middle class. The responses were factor analyzed and correlated with cognitive measures of the children and observed paternal behaviors. The results indicated that the questionnaire has validity and can provide meaningful data about paternal childrearing practices and expectations. Significant sex, social class, and sex-by-social class differences emerged. The results were interpreted in terms of modeling effects, sex role stereotypes, and social class ideology.

PATERNAL QUESTIONNAIRE DATA AND THE PRESCHOOL CHILD

The overall purpose of the following investigation was to examine the relationship of paternal responses to a childrearing questionnaire with observed paternal behavior and measures of competence in four-year-old children. Fathers of preschool boys and girls responded to the Cognitive Home Environment Scale (CHES), a questionnaire developed for use with mothers, probing attitudes, home activities and possessions related to education (Radin, 1969, 1972b; Radin and Glasser, 1972; Radin and Sonquist, 1968; Wittes and Radin, 1971). The CHES is similar to the Inventory of Home Stimulation (STIM) developed by Caldwell, Heider and Kaplan (1966). Both the CHES and the STIM ask specific questions about maternal behavior, such as amount of time spent reading to the child, rather than rating general characteristics, such as warmth. Further, the CHES and STIM are based on similar assumptions concerning conditions which foster the cognitive development of the young child, e.g., a stimulating and responsive social learning environment, a variety of available cultural and sensory materials, etc. The CHES differs from the STIM however, in that the STIM includes some scores on observed behavior which the interviewer must be trained to collect. The CHES is administered entirely as a questionnaire and requires nothing of the person posing the questions except interviewing skills. The CHES therefore appeared to be a fruitful instrument to develop for use with fathers.

Specifically, the purposes of this study were three-fold. The first aim was to enhance the utility of the CHES as a instrument for fathers by performing a factor analysis using only paternal responses to the items. In a pilot exploring father-son interactions, Radin

(1973) found that there were some significant associations between observed paternal behavior with preschool-aged boys and the responses fathers offered to the CHES. In this pilot study however, fathers' scores were based on factors which had emerged when mothers responded to the instrument because the questionnaire had not been employed with fathers previously. The sample in this investigation, part of a larger study of father-child interactions (Radin & Epstein, 1975; Epstein & Radin, 1975; Jordan, Radin and Epstein, 1975) was large enough to permit a factor analysis of fathers' responses to the CHES.

The second purpose of the study was to assess the validity of the CHES when used with fathers by determining whether the CHES factors correlated in a meaningful and predictable way with demographic data, with children's cognitive measures, and in cases where it was appropriate, with observed father behaviors such as observed intellectual stimulation of the child. A recent review of the literature (Radin, in press) has indicated that fathers exert a strong influence on the intellectual development of young boys. However, there are virtually no childrearing instruments readily available for use with fathers of preschool children whose validity has been assessed with men as respondents. This study hoped to help fill that gap. The CHES's construct validity (soundness in that it measures what it purports to measure) could not be assessed by simply examining the correlations between observations and questionnaire responses as the behaviors assessed in the individual CHES items (e.g., do you have a library card) are for the most part different than the specific behaviors assessed during the home observation (e.g., use of reinforcement). Instead, the construct validity was determined by exploring the logical, pre-

dictable correlations between CHES responses and other data available. The nature of the sample permitted an examination of such correlations for fathers of boys, fathers of girls, and fathers of different social strata. Further, correlations between father and child measures could be explored for the various sex/social class subgroups. Because the sample was confined to a white population, the confounding effects of race was not an issue.

The third purpose of the study was to explore the theoretical linkages between the correlational data obtained and the findings of other relevant investigations.

Method

Sample

One hundred and eighty families from seven cities in Michigan were studied. The families consisted of 65 middle-class, 71 working-class and 44 lower-class families. The Hollingshead Two Factor Index of Social Position (Hollingshead, 1957) was utilized to determine social class status on the basis of level of education attained and occupational status of both parents. The names of four-year-old subjects were obtained from 12 elementary schools which had preschool programs or older siblings enrolled and information about younger children in the family. No significant social class differences were found in the percentage of families contacted who agreed to participate in the project. There were 37 middle-class boys, 28 middle-class girls, 39 working-class boys, 32 working-class girls, 23 lower-class boys, and 21 lower-class girls in the sample.

Procedure

Each father was interviewed in his home by a male interviewer

who asked that only the child and father be present in the room during the interview. The interview consisted of the Cognitive Home Environment Scale (Radin and Sonquist, 1968), as well as a number of questions designed to elicit demographic data and information on fathers' child-rearing behaviors and attitudes. At the end of the interview, the child was given a number of puzzles to complete, primarily to justify his or her presence.

All verbal and nonverbal interactions between the father and his child during the interview were recorded. The verbal interactions were recorded on a Sony tape recorder and the nonverbal interactions were included in the notes taken by the interviewer during the session. The interactions during the 30 minutes with the most father-child interactions were subsequently scored according to 25 behavioral categories. A detailed description of the interview method and categories appears elsewhere (Radin, 1972a). The reliability of the coding procedures was established by having two research assistants code the behaviors independently. Their agreement, using Cartwright's (1956) formula, was 87.4%. The reliability of the observations per se were determined by repeating the interview with 20 fathers approximately two weeks after the initial session. No significant differences were found in the frequency of any of the 25 behaviors in the two interviews.

Approximately two weeks after the interview, the child was seen by trained psychologists in two individual testing sessions. In the first session, a series of Piagetian tasks developed by DeVries (1971) was administered; in the second session, the Stanford-Binet Intelligence Scale was given.

Measures

(a) Cognitive Home Environment Scale (CHES) - The CHES is a semi-structured questionnaire designed to measure the degree of cognitive stimulation in the home of kindergarten and preschool children by asking questions of their mothers. It includes questions about the availability of educational and craft items to the child, the grades the responding parent wants and expects the child to receive in school, the kinds of activities the child shares with the respondent and the rest of the family, the respondent's plans for the child's future education, etc. Answers are rated on a seven-point scale from a low to a high level of cognitive stimulation. Two research assistants scoring the CHES independently had an average interrater reliability of 92.3% (Cartwright, 1956). The instrument is a modification of that developed by Wolf (1964) for use with parents of eleven-year-old children, and is described in greater detail elsewhere (Radin and Sonquist, 1968). The instrument as used with fathers is identical to that used with mothers, except that a single item in which mothers are asked about fathers' behavior is changed to allow fathers to report on mothers' behavior with the child. The responses of 115 low-income mothers of four- and five-year-old children were factor analyzed through a principal component solution and varimax rotation; five factors emerged which were labelled: Educational Materials in the Home; Grades Expected; Future Expectations; Educationally-Supportive Activities; and Direct Teaching (Radin and Sonquist, 1968). The instrument has been used in a number of intervention programs by the second author of this paper. None of the factors showed a significant change when used as a pre- and post-test with a control group in an experimental study (Radin, 1972b). Thus the instrument can be considered reliable, at least when used with

mothers.

(b) **Father-Child Behaviors** - A factor analysis of the 25 interaction categories yielded different factorial structures for the behavior of fathers with sons and fathers' behaviors with daughters (Radin and Epstein, 1975). Of the four factors which emerged for boys, the first two could be regarded as nurturant and the other two as restrictive. The boys' father factors were labelled: (1) Positive Response to Child and Cognitive Stimulation; (2) Empathy and Psychological Manipulation; (3) Preventive and Physical Control; and (4) Verbal Restrictiveness. Of the six factors found for girls, the first three contained "mixed messages", in that they each combined both nurturant and supportive behaviors with restrictive and punitive elements. The girls' father factors were labelled: (1) Meeting and Ignoring Explicit needs; (2) Aversive and Non-Aversive Control; (3) Verbal Restrictiveness and Requesting; (4) Empathy, Psychological Manipulation, and Cognitive Stimulation; (5) Attention to Child's Verbal Verbalizations; and (6) Physical Restrictiveness.

In addition, a variable called Child Initiates was computed by adding the frequencies in those categories where the father's behavior was clearly in response to the child's directing an activity towards the father and/or interviewer, e.g., asking the father for a cookie, telling the father and interviewer about a television program, etc. This variable thus provides a measure of how demanding the child is of the adult in his presence.

(c) **Piagetian Tasks** - The DeVries scoring procedures for the Piaget tasks, as modified by Epstein (1973) yielded two scores. One gives a Mean Total Performance (MTP) score, or an average of the child's per-

formance levels across all eight tasks, e.g., conservation of mass, sex-role constancy. Another measure, Piaget Verbalizations, refers to the child's ability to explain to the tester the reasons for his/her choices (answers) on the tasks.

(d) Stanford-Binet Intelligence Scale - Children's IQ scores were computed according to the new 1972 norms.

Data Analysis

A principal components factor analysis with a varimax rotation was performed with the 25 items of the CHES questionnaire. A number of factors were rotated until the simplest factor structure was found. The Scree Test (Cattell, 1966) was used as a guide in selecting the number of factors to rotate. Separate factor analyses were performed on the total sample and for each sex, although the subsamples were too small to permit separate analyses for each social class. Because no important sex differences in factor structures were found, the five factors emerging for the total sample of 180 subjects were used in all subsequent analyses. Pearson coefficients of correlation were computed among the CHES factors for the total population to determine the relationships among the factors.

Five 2-way analyses of variance were performed, using sex and social class as the independent variables, and each of the five CHES factors as the dependent variables. Pearson coefficients of correlation were computed between the CHES factor scores and the father-child behaviors, the Stanford-Binet IQ scores, the two Piaget scores, and the Child Initiates score for the following subgroups: boys, girls, MC boys, MC girls, WC boys, WC girls, LC boys, and LC girls. Correlations were not computed for the total sample or for each social class since the

father-child behavior factors were different for the two sexes.

Results

In Table 1 appear the factor loadings of the 25 CHES items on each of the five factors which emerged for the total samples. The first factor, labelled Future Expectations, contained questions about how far the father expected the child to go in his/her education, e.g., high school, college, etc. The second factor, Father Stimulate Child, assessed the amount of time the father spent teaching the child either informally or formally, and the educational quality of the father's interactions with the child individually and with the family as a group. Mother Stimulates Child, the third factor, refers to the amount and quality of the mother's efforts to teach the child, as reported by the father. This third factor also assesses the number of educational gifts and craft items available to the child, which according to most fathers, were purchased by the mothers. In the fourth factor, Use of External Resources, are items which refer to educational experiences the child has had through sources outside the family, such as travel, the library, educational television programs. Finally, Grades Expected contains two items which ask the father what grades he expects his son/daughter to receive upon entering school the following year and what grades would satisfy the father. These five CHES factors together explained 39% of the total variance. Of the ten intercorrelations of CHES factors for the total sample, three were significant. The factor Future Expectations was positively and significantly correlated with Father Stimulate Child ($r = .18, p < .05$) and with Use of External Resources ($r = .24, p < .01$). In addition, Father Stimulates Child and Mother Stimulates Child were negatively correlated ($r = -.16, p < .05$).

The analysis of variance revealed a significant social class effect for four of the five CHES factors, i.e., Future Expectations ($F = 9.29$, $df = 2,174$, $p < .01$), Father Stimulates Child ($F = 5.63$, $df = 2,174$, $p < .01$), Use of External Resources ($F = 4.84$, $df = 2,174$, $p < .01$), and Grades Expected ($F = 3.85$, $df = 2,174$, $p < .05$). Only the factor Mother Stimulates Child did not show a significant social class effect.

Post-hoc comparisons indicated significant differences among all three classes in Future Expectations, i.e., the middle class scored higher than the working class and the lower class, and the working class also scored higher than the lower class. On both Father Stimulates Child and Use of External Resources, the lower class scored significantly below the other two social classes. Finally, on Grades Expected, the middle class scored significantly above the other two social classes. In addition, on Grades Expected, there was a significant sex effect such that girls were expected to receive higher grades than boys upon entering school. There were no other sex effects and no significant interaction effects of sex and social class upon any of the CHES factor scores.

Insert Table 1 about here

In Table 2 are presented the significant correlations between the five CHES factors and the observed father behavior factors. The number of significant correlations obtained for each subgroup was greater than the number which would be expected from chance alone. As can be seen in the table, among boys, every CHES factor was positively and significantly correlated with the boys' father factor, Positive Response and Cognitive Stimulation, in at least one subgroup. Among girls, four of

five CHES factors were significantly correlated with the Observed Factor Meeting and Ignoring Explicit Needs. This factor was negatively associated with future expectations in the working class and positively associated in the lower class. Grades expected were negatively related to physical restrictiveness for all girls and for lower-class girls.

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Insert Table 2 about here
- - - - -

Table 3 lists the significant correlations between the five CHES factors and four Child Measures, i.e., I.Q., Piaget Mean Total Performance, Piaget Verbalizations, and Child Initiates. For each subgroup, the significant correlations are listed only when the number of such relationships was greater than the number expected from chance alone. Four of the five CHES factors showed significant correlations with child measures, and all of these associations were positive. The Mother Stimulates Factor was significantly correlated with girls' measures only. For boys, short-term expectations (school grades) but not long-term (future) paternal expectations were related to measures of sons' cognitive ability. For girls, both types of expectations were associated with the child's intellectual competence. From the table it can be seen that there were two significant correlations between CHES factors and child measures for boys, and thirteen significant relationships for girls. In addition, while the child's assertiveness was not related to home stimulation for boys, Child Initiates appeared four times as a significant correlate in various girls' subgroups. Significant correlations between CHES factors and boys' cognitive measures appeared only in the working class.

Insert Table 3 about here

Discussion

The factor analysis of the Cognitive Home Environment Scale yielded five separate factors which had low inter-correlations. Thus it appears that there are several dimensions underlying the CHES and that a total score should not be used. In general, the data suggested that the Cognitive Home Environment Scale does have construct validity, and would be a useful instrument to use in research with fathers of preschool children. One indication of the construct validity of the CHES is its extreme sensitivity to social class differences in the amount of cognitive stimulation found in the home which would be predicted from data about the class differences in school performance of children (Eells, Davis, Havighurst, Herrick & Tyler, 1951). In addition, Father Stimulates Child, as reported on the CHES, was positively and significantly correlated with the observed father factor, Positive Response to Child and Cognitive Stimulation, suggesting that CHES is measuring what it purports to measure. Further evidence of the CHES' construct validity and its use in investigating the relationship between home stimulation and the intellectual development of the preschool child was shown by the fact that four of the five factors of the instrument purporting to assess cognitive stimulation of the child correlated positively and significantly with children's cognitive measures even when social class was controlled. Further, as one would predict, fathers who physically restrict their daughters at home, have lower expectation about the girls' school performance. It is logical that fathers who feel they have to re-

strain their daughters physically will expect the girls' teachers to have difficulty with the youngsters.

CHES factors revealed differences in short-term expectations between fathers of four-year-old sons and fathers of four-year-old daughters. Fathers of girls had higher expectations concerning grades than fathers of boys. This expectation is realistic, for studies show that girls to indeed do better in school during the early elementary years (Maccoby, 1966). While fathers were undoubtedly familiar with such previous research, their expectations for their daughters could have derived from their own experience in school, sex-role stereotypes, and/or their accurate image of the school as basically female-oriented (Sexton, 1969).

The association of the father behavior factor, Positive Response and Cognitive Stimulation, with the CHES factors, Future Expectations and Grades Expected, indicates that fathers who are more nurturant, who are more need-meeting and cognitively stimulating, have higher hopes for their sons. It is possible, of course, that the casual direction is not from behavior to expectation, but from expectations to behavior; a "Pygmalion Effect" (Rosenthal and Jacobson, 1966) may operate in the home as well as in the classroom. Brophy and Good (1969) found that teachers are more stimulating and rewarding with youngsters they expect to perform well. The same phenomenon may exist with fathers; fathers with high expectations of their sons stimulate them more. The data suggest, however, that paternal expectations for sons are not always reality-based. For no boys' group were fathers' future expectations for sons related to any measures of the boys' intellectual competence. Since aspirations for sons were not associ-

ated with their ability, fathers' long-range hopes for the boys may partially reflect their own achievement fantasies. In contrast, in the case of daughters, future expectations were significantly related to the child's cognitive competence. Perhaps young daughters do not elicit paternal achievement fantasies as readily as young sons. Maccoby and Jacklin (1974) allude to this phenomenon in their discussion of parental identification with same-sex children.

Among the various girls' subgroups, four of the CHES factors were significantly related to the observed "mixed message" factor, Meeting and Ignoring Explicit Needs. In as much as this paternal factor assessed the father's responses to his daughter's explicit demands, the relationship with CHES factors suggests that home stimulation may produce girls who are assertive and demanding, or more reasonably, that girls who are already outgoing elicit stimulation and high expectations. The disproportionate number of correlations between Child Initiates and CHES factors for girls compared to boys, four vs none, suggests that the child's assertiveness in eliciting cognitive stimulation at home may be more important for females than for males. Perhaps this stimulation is automatically forthcoming for boys because it is regarded as sex-appropriate. Girls however, must first express demands, or give evidence of their ability before educational experiences are provided for them.

The association between daughter's assertiveness and father's long-range expectations appears to be differentiated according to social class. The father of a demanding working-class girl tends not to have high future expectations for his daughter, perhaps because he believes such sex-inappropriate behavior will limit her prospects.

By contrast, the lower-class father, while responding ambivalently to his daughter's demands, sometimes meeting them and sometimes ignoring them, expects that her active posture will help her advance or thrive. This expectation may be realistic in view of the disproportionately large number of lower-class women who serve as heads of households (Bronfenbrenner, 1975) and/or cope under very adverse circumstances. The finding that the CHES factor Mother Stimulates Child was significantly correlated with cognitive measures and with Child Initiates for girls, but not for boys, lends support to the theory posed by Lynn (1966) among others, that the preschoolaged girl is using her mother as her prime model. The data emerging in this study suggest that the daughters, but not the sons, of stimulating mothers are active initiators themselves, and have benefited intellectually from the mother's activities. These results are consistent with data obtained by Lynn and Cross (1974) who found that mothers are more powerful models for four-year-old girls than for four-year-old boys.

Other analyses of the data (Radin and Epstein, 1975) combine with the findings discussed above to shed light on the influence pattern of the triad of mother, father, and preschool daughter. Virtually no significant correlations were found between observed father behaviors and girls' cognitive measures. The explanation offered (Radin and Epstein, 1975; Jordan et al, 1975) was that the young girls were modeling their mothers not their fathers and thus the daughters' intellectual development was relatively untouched by paternal behaviors. The findings concerning the CHES factors suggest that father expectations for their daughters may be communicated to mothers who then model a different kind of behavior for their daughters, or provide more

nurturance and stimulations for them. Thus fathers' influence on the preschool girls' cognitive development may be primarily mediated by mothers.

The pattern of influence for young boys appears to be entirely different. Again previous studies combine with the current CHES finding to suggest a set of linkages. Observed paternal nurturance during a non-task situation was found to be positively associated with cognitive competence in four-year-old boys; paternal restrictiveness was found to be negatively associated (Radin, 1972; Radin, Radin and Epstein, 1975, Epstein and Radin, 1975). Maternal behavior, however, was found to have little association with preschool boys' intellectual functioning; rather, maternal nurturance was associated with cognitive competence of preschool girls (Radin, 1974). The results of this investigation suggest that instructional paternal activities such as reading to young boys, teaching them words, and assisting them with learning, have little influence on the boys' intellectual competence. Possibly these activities are engaged in too infrequently to have an impact, or are seen by the boy as inappropriate for the male role the young boy is trying to establish for himself at four-years of age (Maccoby and Jacklin, 1974). It therefore appears that fathers' interactive behavior with young sons can foster or hinder the boys' intellectual development when the behavior occurs in the normal course of their daily lives. Deliberate paternal efforts to play on academic teaching role may not have the same significant impact. Another possible explanation is that fathers' responses on the CHES do not accurately reflect their behaviors.

It is not clear why father responses to the CHES were associated with measures of sons' intellectual competence in the working class, but not in the two other classes. The CHES factor scores of working-class fathers did not differ significantly from those of middle- or lower-class fathers. Kohn's (1969) findings that working-class fathers stress obedience and conformity in their childrearing practices may be relevant. Perhaps the messages coming from working-class fathers concerning the grades expected of their sons carry a demand quality not present in the other classes. Similarly, fathers' communications in the working class concerning desirable TV programs, use of the library, and the like may readily elicit compliance in sons and hence serve to stimulate their cognitive growth. Further research concerning paternal behavior in blue collar families is needed to clarify the issue.

In sum, this study suggests that paternal data collected through the CHES has validity and can help to predict the cognitive competence of preschool-aged girls and working-class boys. The questionnaire also provides information about stimulating paternal behavior and conditions present in families with either preschool-aged sons or daughters. Other possible uses of the instrument have yet to be explored, for example as a dependent variable reflecting fathers' employment status or mental state, or as an independent variable influencing the mental health of the young child. The Cognitive Home Environment Scale could also have utility as a before and after measure to determine the impact of a program directed at fathers. It may also yield significant comparative data concerning paternal practices in various family forms, including such non-traditional

forms as single father families. Judges deciding custody disputes may find this information particularly helpful.

There is no longer any major dispute about the important role played by fathers in the development of the young child. Much remains to be learned, however about how men function with their young children and the correlates of these behaviors. Hopefully the instrument explored in this study will facilitate such investigations.

TABLE I
Factor Loadings of Cognitive Home Environment Scale (CHES) Items

CHES Items	Factors					h^2
	Future Ex- pectations	Father Stimu- lates Child	Mother Stimu- lates Child	Use of Ex- ternal Re- sources	Grades Expected	
Grades expected	.01	.04	.05	-.01	<u>.72</u>	.52
Grades satisfied	-.02	.04	.02	.01	<u>.69</u>	.48
Towns visited	.12	.06	.11	<u>.56</u>	.13	.36
Newspapers/magazines in home	-.00	<u>.62</u>	-.03	.07	.20	.43
Gifts: educational	-.10	.13	<u>.55</u>	.45	-.03	.53
No. gift items	.05	.33	.27	<u>.48</u> _	-.12	.43
Library card	.04	-.06	.32	<u>.44</u> _	.29	.38
No. craft items	.10	.13	<u>.55</u>	-.00	.28	.41
Dictionary	.10	<u>.47</u> _	-.27	.22	.20	.39
Encyclopedia	.00	.32	<u>-.50</u>	.21	.24	.46
Father assists with learning	.01	<u>.53</u>	.14	-.05	.07	.31
Eating together	-.02	.29	.25	<u>-.51</u>	.03	.40
Amount of time family together	.11	<u>-.59</u>	-.00	.00	-.10	.37
Mother assists with learning	.20	.16	<u>.53</u>	.01	-.10	.35
Other friendly adults	-.30	.22	.15	-.09	.10	.18
Father reads to child	.21	<u>.39</u> _	.13	-.11	-.01	.23
Father recommends TV	.07	.15	-.02	<u>.46</u> _	-.05	.24
Father teaches new words	-.12	<u>.44</u> _	-.04	.24	-.06	.27
Concern with child's talk	.12	-.22	<u>-.47</u> _	.15	-.34	.42
Amount of school desired	<u>.78</u>	.03	.07	.11	-.07	.63

Table 1 continued:

Amount of school expected	<u>.73</u>	.21	.18	.03	.08	.62
Least amount of school needed	<u>.61</u>	-.03	.05	-.05	.35	.50
Kind of work child will do	.25	-.28	-.23	<u>-.42</u>	-.05	.38
Approval of intellectual achievements	.22	.02	-.14	.05	<u>-.39</u>	.22
Desire for college	<u>.57</u>	.09	.09	.16	.05	.35
Percent of total variance explained	.09	.09	.07	.07	.07	.39

Note: The highest factor loading for each item is underlined when the loading is above .50. When the loading is between .31 and .49, a dotted line appears.

TABLE 2

Significant Correlations between CHES Factors and Observed
Father Behavior Factors

CHES Factor	Observed Factor	Sample	N	r
Future Expectations	Boys:			
	Positive Response & Cognitive			
	Stimulation	All Boys	99	.22*
	Empathy & Psych. Manipulation	WC Boys	39	-.43**
	Verbal Restrictiveness	MC boys	37	-.39*
	Girls:			
	Meeting & Ignoring Explicit Needs	WC girls	32	-.37*
		LC girls	21	.61**
	Attention to Child's Verbalizat-			
	ions	MC girls	28	-.48**
Father Stimulates Child	Boys:			
	Positive Response & Cognitive			
	Stimulation	All boys	99	.31**
		WC boys	39	.31*
	Girls:			
	Meeting & Ignoring Exlicit			
	Needs	LC girls	21	.43*
Mother Stimulates Child	Boys:			
	Positive Response & Cognitive			
	Stimulation	All boys	99	.30**
		MC boys	37	.42**
	Verbal Restrictiveness	LC boys	23	.44*
	Girls:			
	Meeting & Ignoring Explicit Needs	MC girls	28	.37*
	Aversive & Non-aversive Control	MC girls	28	.38*

Table 2 continued:

Verbal Restrictiveness & Request.	WC girls	32	-.47**
Empathy, Psych. Manipulation & Cognitive Stimulation	LC girls	21	.46*
Attention to Child's Verbaliza- tions	All girls	81	.27*
Use of External Resources Boys:			
Positive Response & Cognitive Stimulation	All boys	99	.27**
Girls:			
Meeting & Ignoring Explicit Needs	All girls	81	.29**
	MC girls	28	.46*
	LC girls	21	.50*
Aversive & Non-aversive Control	All girls	81	.25*
	WC girls	32	.36*
Grades Expected			
Boys:			
Positive Response & Cognitive Stimulation	MC boys	37	.40**
	LC boys	23	.48*
Girls:			
Physical Restrictiveness	All girls	81	-.22*
	LC girls	21	-.46*

*p < .05

**p < .01

TABLE 3

Significant Correlations between CHES Factors and Children's Measures

CHES Factor	Children's Measure	Sample	N	r
Future Expectations	IQ	All Girls	79	.30**
		WC girls	31	.41*
	Piaget Verbalizations	WC girls	32	.41*
	Child Initiates	LC girls	21	.45*
Father Stimulates Child	None			
Mother Stimulates Child	IQ	MC girls	28	.47**
	Piaget Verbalizations	LC girls	21	.46*
	Child Initiates	MC girls	28	.46**
Use of External Resources	IQ	WC boys	39	.37*
		All Girls	79	.27*
		WC girls	31	.36*
	Child Initiates	All Girls	81	.28**
		MC girls	28	.52**
Grades Expected	Piaget MTP	All Girls	81	.24*
		WC girls	32	.42*
	Piaget Verbalizations	WC boys	39	.32*
		WC girls	32	.38*

*p < .05

**p < .01

Footnotes

¹See cover sheet.

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ABSTRACT

A questionnaire previously employed with mothers was administered to 180 white fathers of four-year-old children in the lower, working, and middle class. The responses were factor analyzed and correlated with cognitive measures of the children and observed paternal behaviors. The results indicated that the questionnaire has validity and can provide meaningful data about paternal childrearing practices and expectations. Significant sex, social class, and sex-by-social class differences emerged. The results were interpreted in terms of modeling effects, sex role stereotypes, and social class ideology.

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PATERNAL QUESTIONNAIRE DATA AND THE PRESCHOOL CHILD

The overall purpose of the following investigation was to examine the relationship of paternal responses to a childrearing questionnaire with observed paternal behavior and measures of competence in four-year-old children. Fathers of preschool boys and girls responded to the Cognitive Home Environment Scale (CHES), a questionnaire developed for use with mothers, probing attitudes, home activities and possessions related to education (Radin, 1969, 1972b; Radin and Glasser, 1972; Radin and Sonquist, 1968; Wittes and Radin, 1971). The CHES is similar to the Inventory of Home Stimulation (STIM) developed by Caldwell, Weider and Kaplan (1966). Both the CHES and the STIM ask specific questions about maternal behavior, such as amount of time spent reading to the child, rather than rating general characteristics, such as warmth. Further, the CHES and STIM are based on similar assumptions concerning conditions which foster the cognitive development of the young child, e.g., a stimulating and responsive social learning environment, a variety of available cultural and sensory materials, etc. The CHES differs from the STIM however, in that the STIM includes some scores on observed behavior which the interviewer must be trained to collect. The CHES is administered entirely as a questionnaire and requires nothing of the person posing the questions except interviewing skills. The CHES therefore appeared to be a fruitful instrument to develop for use with fathers.

Specifically, the purposes of this study were three-fold. The first aim was to enhance the utility of the CHES as a instrument for fathers by performing a factor analysis using only paternal responses to the items. In a pilot exploring father-son interactions, Radin

(1973) found that there were some significant associations between observed paternal behavior with preschool-aged boys and the responses fathers offered to the CHES. In this pilot study however, fathers' scores were based on factors which had emerged when mothers responded to the instrument because the questionnaire had not been employed with fathers previously. The sample in this investigation, part of a larger study of father-child interactions (Radin & Epstein, 1975; Epstein & Radin, 1975; Jordan, Radin and Epstein, 1975) was large enough to permit a factor analysis of fathers' responses to the CHES.

The second purpose of the study was to assess the validity of the CHES when used with fathers by determining whether the CHES factors correlated in a meaningful and predictable way with demographic data, with children's cognitive measures, and in cases where it was appropriate, with observed father behaviors such as observed intellectual stimulation of the child. A recent review of the literature (Radin, in press) has indicated that fathers exert a strong influence on the intellectual development of young boys. However, there are virtually no childrearing instruments readily available for use with fathers of preschool children whose validity has been assessed with men as respondents. This study hoped to help fill that gap. The CHES's construct validity (soundness in that it measures what it purports to measure) could not be assessed by simply examining the correlations between observations and questionnaire responses as the behaviors assessed in the individual CHES items (e.g., do you have a library card) are for the most part different than the specific behaviors assessed during the home observation (e.g., use of reinforcement). Instead, the construct validity was determined by exploring the logical, pre-

dictable correlations between CHES responses and other data available. The nature of the sample permitted an examination of such correlations for fathers of boys, fathers of girls, and fathers of different social strata. Further, correlations between father and child measures could be explored for the various sex/social class subgroups. Because the sample was confined to a white population, the confounding effects of race was not an issue.

The third purpose of the study was to explore the theoretical linkages between the correlational data obtained and the findings of other relevant investigations.

Method

Sample

One hundred and eighty families from seven cities in Michigan were studied. The families consisted of 65 middle-class, 71 working-class and 44 lower-class families. The Hollingshead Two Factor Index of Social Position (Hollingshead, 1957) was utilized to determine social class status on the basis of level of education attained and occupational status of both parents. The names of four-year-old subjects were obtained from 12 elementary schools which had preschool programs or older siblings enrolled and information about younger children in the family. No significant social class differences were found in the percentage of families contacted who agreed to participate in the project. There were 37 middle-class boys, 28 middle-class girls, 39 working-class boys, 32 working-class girls, 23 lower-class boys, and 21 lower-class girls in the sample.

Procedure

Each father was interviewed in his home by a male interviewer

who asked that only the child and father be present in the room during the interview. The interview consisted of the Cognitive Home Environment Scale (Radin and Sonquist, 1968), as well as a number of questions designed to elicit demographic data and information on fathers' child-rearing behaviors and attitudes. At the end of the interview, the child was given a number of puzzles to complete, primarily to justify his or her presence.

All verbal and nonverbal interactions between the father and his child during the interview were recorded. The verbal interactions were recorded on a Sony tape recorder and the nonverbal interactions were included in the notes taken by the interviewer during the session. The interactions during the 30 minutes with the most father-child interactions were subsequently scored according to 25 behavioral categories. A detailed description of the interview method and categories appears elsewhere (Radin, 1972a). The reliability of the coding procedures was established by having two research assistants code the behaviors independently. Their agreement, using Cartwright's (1956) formula, was 87.4%. The reliability of the observations per se were determined by repeating the interview with 20 fathers approximately two weeks after the initial session. No significant differences were found in the frequency of any of the 25 behaviors in the two interviews.

Approximately two weeks after the interview, the child was seen by trained psychologists in two individual testing sessions. In the first session, a series of Piagetian tasks developed by DeVries (1971) was administered; in the second session, the Stanford-Binet Intelligence Scale was given.

Measures

(a) Cognitive Home Environment Scale (CHES) - The CHES is a semi-structured questionnaire designed to measure the degree of cognitive stimulation in the home of kindergarten and preschool children by asking questions of their mothers. It includes questions about the availability of educational and craft items to the child, the grades the responding parent wants and expects the child to receive in school, the kinds of activities the child shares with the respondent and the rest of the family, the respondent's plans for the child's future education, etc. Answers are rated on a seven-point scale from a low to a high level of cognitive stimulation. Two research assistants scoring the CHES independently had an average interrater reliability of 92.3% (Cartwright, 1956). The instrument is a modification of that developed by Wolf (1964) for use with parents of eleven-year-old children, and is described in greater detail elsewhere (Radin and Sonquist, 1968). The instrument as used with fathers is identical to that used with mothers, except that a single item in which mothers are asked about fathers' behavior is changed to allow fathers to report on mothers' behavior with the child. The responses of 115 low-income mothers of four- and five-year-old children were factor analyzed through a principal component solution and varimax rotation; five factors emerged which were labelled: Educational Materials in the Home; Grades Expected; Future Expectations; Educationally-Supportive Activities; and Direct Teaching (Radin and Sonquist, 1968). The instrument has been used in a number of intervention programs by the second author of this paper. None of the factors showed a significant change when used as a pre- and post-test with a control group in an experimental study (Radin, 1972b). Thus the instrument can be considered reliable, at least when used with

mothers.

(b) **Father-Child Behaviors** - A factor analysis of the 25 interaction categories yielded different factorial structures for the behavior of fathers with sons and fathers' behaviors with daughters (Radin and Epstein, 1975). Of the four factors which emerged for boys, the first two could be regarded as nurturant and the other two as restrictive. The boys' father factors were labelled: (1) Positive Response to Child and Cognitive Stimulation; (2) Empathy and Psychological Manipulation; (3) Preventive and Physical Control; and (4) Verbal Restrictiveness. Of the six factors found for girls, the first three contained "mixed messages", in that they each combined both nurturant and supportive behaviors with restrictive and punitive elements. The girls' father factors were labelled: (1) Meeting and Ignoring Explicit needs; (2) Aversive and Non-Aversive Control; (3) Verbal Restrictiveness and Requesting; (4) Empathy, Psychological Manipulation, and Cognitive Stimulation; (5) Attention to Child's Verbal Verbalizations; and (6) Physical Restrictiveness.

In addition, a variable called Child Initiates was computed by adding the frequencies in those categories where the father's behavior was clearly in response to the child's directing an activity towards the father and/or interviewer, e.g., asking the father for a cookie, telling the father and interviewer about a television program, etc. This variable thus provides a measure of how demanding the child is of the adult in his presence.

(c) **Piagetian Tasks** - The DeVries scoring procedures for the Piaget tasks, as modified by Epstein (1973) yielded two scores. One gives a Mean Total Performance (MTP) score, or an average of the child's per-

formance levels across all eight tasks, e.g., conservation of mass, sex-role constancy. Another measure, Piaget Verbalizations, refers to the child's ability to explain to the tester the reasons for his/her choices (answers) on the tasks.

(d) Stanford-Binet Intelligence Scale - Children's IQ scores were computed according to the new 1972 norms.

Data Analysis

A principal components factor analysis with a varimax rotation was performed with the 25 items of the CHES questionnaire. A number of factors were rotated until the simplest factor structure was found. The Scree Test (Cattell, 1966) was used as a guide in selecting the number of factors to rotate. Separate factor analyses were performed on the total sample and for each sex, although the subsamples were too small to permit separate analyses for each social class. Because no important sex differences in factor structures were found, the five factors emerging for the total sample of 180 subjects were used in all subsequent analyses. Pearson coefficients of correlation were computed among the CHES factors for the total population to determine the relationships among the factors.

Five 2-way analyses of variance were performed, using sex and social class as the independent variables, and each of the five CHES factors as the dependent variables. Pearson coefficients of correlation were computed between the CHES factor scores and the father-child behaviors, the Stanford-Binet IQ scores, the two Piaget scores, and the Child Initiates score for the following subgroups: boys, girls, MC boys, MC girls, WC boys, WC girls, LC boys, and LC girls. Correlations were not computed for the total sample or for each social class since the

father-child behavior factors were different for the two sexes.

Results

In Table 1 appear the factor loadings of the 25 CHES items on each of the five factors which emerged for the total samples. The first factor, labelled Future Expectations, contained questions about how far the father expected the child to go in his/her education, e.g., high school, college, etc. The second factor, Father Stimulate Child, assessed the amount of time the father spent teaching the child either informally or formally, and the educational quality of the father's interactions with the child individually and with the family as a group. Mother Stimulates Child, the third factor, refers to the amount and quality of the mother's efforts to teach the child, as reported by the father. This third factor also assesses the number of educational gifts and craft items available to the child, which according to most fathers, were purchased by the mothers. In the fourth factor, Use of External Resources, are items which refer to educational experiences the child has had through sources outside the family, such as travel, the library, educational television programs. Finally, Grades Expected contains two items which ask the father what grades he expects his son/daughter to receive upon entering school the following year and what grades would satisfy the father. These five CHES factors together explained 39% of the total variance. Of the ten intercorrelations of CHES factors for the total sample, three were significant. The factor Future Expectations was positively and significantly correlated with Father Stimulate Child ($r = .18, p < .05$) and with Use of External Resources ($r = .24, p < .01$). In addition, Father Stimulates Child and Mother Stimulates Child were negatively correlated ($r = -.16, p < .05$).

The analysis of variance revealed a significant social class effect for four of the five CHES factors, i.e., Future Expectations ($F = 9.29$, $df = 2,174$, $p < .01$), Father Stimulates Child ($F = 5.63$, $df = 2,174$, $p < .01$), Use of External Resources ($F = 4.84$, $df = 2,174$, $p < .01$), and Grades Expected ($F = 3.85$, $df = 2,174$, $p < .05$). Only the factor Mother Stimulates Child did not show a significant social class effect. Post-hoc comparisons indicated significant differences among all three classes in Future Expectations, i.e., the middle class scored higher than the working class and the lower class, and the working class also scored higher than the lower class. On both Father Stimulates Child and Use of External Resources, the lower class scored significantly below the other two social classes. Finally, on Grades Expected, the middle class scored significantly above the other two social classes. In addition, on Grades Expected, there was a significant sex effect such that girls were expected to receive higher grades than boys upon entering school. There were no other sex effects and no significant interaction effects of sex and social class upon any of the CHES factor scores.

Insert Table 1 about here

In Table 2 are presented the significant correlations between the five CHES factors and the observed father behavior factors. The number of significant correlations obtained for each subgroup was greater than the number which would be expected from chance alone. As can be seen in the table, among boys, every CHES factor was positively and significantly correlated with the boys' father factor, Positive Response and Cognitive Stimulation, in at least one subgroup. Among girls, four of

five CHES factors were significantly correlated with the Observed Factor Meeting and Ignoring Explicit Needs. This factor was negatively associated with future expectations in the working class and positively associated in the lower class. Grades expected were negatively related to physical restrictiveness for all girls and for lower-class girls.

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Insert Table 2 about here
- - - - -

Table 3 lists the significant correlations between the five CHES factors and four Child Measures, i.e., I.Q., Piaget Mean Total Performance, Piaget Verbalizations, and Child Initiates. For each subgroup, the significant correlations are listed only when the number of such relationships was greater than the number expected from chance alone. Four of the five CHES factors showed significant correlations with child measures, and all of these associations were positive. The Mother Stimulates Factor was significantly correlated with girls' measures only. For boys, short-term expectations (school grades) but not long-term (future) paternal expectations were related to measures of sons' cognitive ability. For girls, both types of expectations were associated with the child's intellectual competence. From the table it can be seen that there were two significant correlations between CHES factors and child measures for boys, and thirteen significant relationships for girls. In addition, while the child's assertiveness was not related to home stimulation for boys, Child Initiates appeared four times as a significant correlate in various girls' subgroups. Significant correlations between CHES factors and boys' cognitive measures appeared only in the working class.

Insert Table 3 about here

Discussion

The factor analysis of the Cognitive Home Environment Scale yielded five separate factors which had low inter-correlations. Thus it appears that there are several dimensions underlying the CHES and that a total score should not be used. In general, the data suggested that the Cognitive Home Environment Scale does have construct validity, and would be a useful instrument to use in research with fathers of preschool children. One indication of the construct validity of the CHES is its extreme sensitivity to social class differences in the amount of cognitive stimulation found in the home which would be predicted from data about the class differences in school performance of children (Eells, Davis, Havighurst, Herrick & Tyler, 1951). In addition, Father Stimulates Child, as reported on the CHES, was positively and significantly correlated with the observed father factor, Positive Response to Child and Cognitive Stimulation, suggesting that CHES is measuring what it purports to measure. Further evidence of the CHES' construct validity and its use in investigating the relationship between home stimulation and the intellectual development of the preschool child was shown by the fact that four of the five factors of the instrument purporting to assess cognitive stimulation of the child correlated positively and significantly with children's cognitive measures even when social class was controlled. Further, as one would predict, fathers who physically restrict their daughters at home, have lower expectation about the girls' school performance. It is logical that fathers who feel they have to re-

strain their daughters physically will expect the girls' teachers to have difficulty with the youngsters.

CHES factors revealed differences in short-term expectations between fathers of four-year-old sons and fathers of four-year-old daughters. Fathers of girls had higher expectations concerning grades than fathers of boys. This expectation is realistic, for studies show that girls to indeed do better in school during the early elementary years (Maccoby, 1966). While fathers were undoubtedly familiar with such previous research, their expectations for their daughters could have derived from their own experience in school, sex-role stereotypes, and/or their accurate image of the school as basically female-oriented (Sexton, 1969).

The association of the father behavior factor, Positive Response and Cognitive Stimulation, with the CHES factors, Future Expectations and Grades Expected, indicates that fathers who are more nurturant, who are more need-meeting and cognitively stimulating, have higher hopes for their sons. It is possible, of course, that the causal direction is not from behavior to expectation, but from expectations to behavior; a "Pygmalion Effect" (Rosenthal and Jacobson, 1966) may operate in the home as well as in the classroom. Brophy and Good (1969) found that teachers are more stimulating and rewarding with youngsters they expect to perform well. The same phenomenon may exist with fathers; fathers with high expectations of their sons stimulate them more. The data suggest, however, that paternal expectations for sons are not always reality-based. For no boys' group were fathers' future expectations for sons related to any measures of the boys' intellectual competence. Since aspirations for sons were not associ-

ated with their ability, fathers' long-range hopes for the boys may partially reflect their own achievement fantasies. In contrast, in the case of daughters, future expectations were significantly related to the child's cognitive competence. Perhaps young daughters do not elicit paternal achievement fantasies as readily as young sons.

Maccoby and Jacklin (1974) allude to this phenomenon in their discussion of parental identification with same-sex children.

Among the various girls' subgroups, four of the CHES factors were significantly related to the observed "mixed message" factor, Meeting and Ignoring Explicit Needs. In as much as this paternal factor assessed the father's responses to his daughter's explicit demands, the relationship with CHES factors suggests that home stimulation may produce girls who are assertive and demanding, or more reasonably, that girls who are already outgoing elicit stimulation and high expectations. The disproportionate number of correlations between Child Initiates and CHES factors for girls compared to boys, four vs none, suggests that the child's assertiveness in eliciting cognitive stimulation at home may be more important for females than for males. Perhaps this stimulation is automatically forthcoming for boys because it is regarded as sex-appropriate. Girls however, must first express demands, or give evidence of their ability before educational experiences are provided for them.

The association between daughter's assertiveness and father's long-range expectations appears to be differentiated according to social class. The father of a demanding working-class girl tends not to have high future expectations for his daughter, perhaps because he believes such sex-inappropriate behavior will limit her prospects.

By contrast, the lower-class father, while responding ambivalently to his daughter's demands, sometimes meeting them and sometimes ignoring them, expects that her active posture will help her advance or thrive. This expectation may be realistic in view of the disproportionately large number of lower-class women who serve as heads of households (Bronfenbrenner, 1975) and/or cope under very adverse circumstances. The finding that the CHES factor Mother Stimulates Child was significantly correlated with cognitive measures and with Child Initiates for girls, but not for boys, lends support to the theory posed by Lynn (1966) among others, that the preschoolaged girl is using her mother as her prime model. The data emerging in this study suggest that the daughters, but not the sons, of stimulating mothers are active initiators themselves, and have benefited intellectually from the mother's activities. These results are consistent with data obtained by Lynn and Cross (1974) who found that mothers are more powerful models for four-year-old girls than for four-year-old boys.

Other analyses of the data (Radin and Epstein, 1975) combine with the findings discussed above to shed light on the influence pattern of the triad of mother, father, and preschool daughter. Virtually no significant correlations were found between observed father behaviors and girls' cognitive measures. The explanation offered (Radin and Epstein, 1975; Jordan et al, 1975) was that the young girls were modeling their mothers not their fathers and thus the daughters' intellectual development was relatively untouched by paternal behaviors. The findings concerning the CHES factors suggest that father expectations for their daughters may be communicated to mothers who then model a different kind of behavior for their daughters, or provide more

nurturance and stimulations for them. Thus fathers' influence on the preschool girls' cognitive development may be primarily mediated by mothers.

The pattern of influence for young boys appears to be entirely different. Again previous studies combine with the current CHES finding to suggest a set of linkages. Observed paternal nurturance during a non-task situation was found to be positively associated with cognitive competence in four-year-old boys; paternal restrictiveness was found to be negatively associated (Radin, 1972; Radin, Radin and Epstein, 1975, Epstein and Radin, 1975). Maternal behavior, however, was found to have little association with preschool boys' intellectual functioning; rather, maternal nurturance was associated with cognitive competence of preschool girls (Radin, 1974). The results of this investigation suggest that instructional paternal activities such as reading to young boys, teaching them words, and assisting them with learning, have little influence on the boys' intellectual competence. Possibly these activities are engaged in too infrequently to have an impact, or are seen by the boy as inappropriate for the male role the young boy is trying to establish for himself at four-years of age (Maccoby and Jacklin, 1974). It therefore appears that fathers' interactive behavior with young sons can foster or hinder the boys' intellectual development when the behavior occurs in the normal course of their daily lives. Deliberate paternal efforts to play on academic teaching role may not have the same significant impact. Another possible explanation is that fathers' responses on the CHES do not accurately reflect their behaviors.

It is not clear why father responses to the CHES were associated with measures of sons' intellectual competence in the working class, but not in the two other classes. The CHES factor scores of working-class fathers did not differ significantly from those of middle- or lower-class fathers. Kohn's (1969) findings that working-class fathers stress obedience and conformity in their childrearing practices may be relevant. Perhaps the messages coming from working-class fathers concerning the grades expected of their sons carry a demand quality not present in the other classes. Similarly, fathers' communications in the working class concerning desirable TV programs, use of the library, and the like may readily elicit compliance in sons and hence serve to stimulate their cognitive growth. Further research concerning paternal behavior in blue collar families is needed to clarify the issue.

In sum, this study suggests that paternal data collected through the CHES has validity and can help to predict the cognitive competence of preschool-aged girls and working-class boys. The questionnaire also provides information about stimulating paternal behavior and conditions present in families with either preschool-aged sons or daughters. Other possible uses of the instrument have yet to be explored, for example as a dependent variable reflecting fathers' employment status or mental state, or as an independent variable influencing the mental health of the young child. The Cognitive Home Environment Scale could also have utility as a before and after measure to determine the impact of a program directed at fathers. It may also yield significant comparative data concerning paternal practices in various family forms, including such non-traditional

forms as single father families. Judges deciding custody disputes may find this information particularly helpful.

There is no longer any major dispute about the important role played by fathers in the development of the young child. Much remains to be learned, however about how men function with their young children and the correlates of these behaviors. Hopefully the instrument explored in this study will facilitate such investigations.

TABLE I
Factor Loadings of Cognitive Home Environment Scale (CHES) Items

CHES Items	Factors					h^2
	Future Ex- pectations	Father Stimu- lates Child	Mother Stimu- lates Child	Use of Ex- ternal Re- sources	Grades Expected	
Grades expected	.01	.04	.05	-.01	<u>.72</u>	.52
Grades satisfied	-.02	.04	.02	.01	<u>.69</u>	.48
Towns visited	.12	.06	.11	<u>.56</u>	.13	.36
Newspapers/magazines in home	-.00	<u>.62</u>	-.03	.07	.20	.43
Gifts: educational	-.10	.13	<u>.55</u>	.45	-.03	.53
No. gift items	.05	.33	.27	<u>.48</u> _	-.12	.43
Library card	.04	-.06	.32	<u>.44</u> _	.29	.38
No. craft items	.10	.13	<u>.55</u>	-.00	.28	.41
Dictionary	.10	<u>.47</u> _	-.27	.22	.20	.39
Encyclopedia	.00	.32	<u>-.50</u>	.21	.24	.46
Father assists with learning	.01	<u>.53</u>	.14	-.05	.07	.31
Eating together	-.02	.29	.25	<u>-.51</u>	.03	.40
Amount of time family together	.11	<u>-.59</u>	-.00	.00	-.10	.37
Mother assists with learning	.20	.16	<u>.53</u>	.01	-.10	.35
Other friendly adults	-.30	.22	.15	-.09	.10	.18
Father reads to child	.21	<u>.39</u> _	.13	-.11	-.01	.23
Father recommends TV	.07	.15	-.02	<u>.46</u> _	-.05	.24
Father teaches new words	-.12	<u>.44</u> _	-.04	.24	-.06	.27
Concern with child's talk	.12	-.22	<u>-.47</u> _	.15	-.34	.42
Amount of school desired	<u>.78</u>	.03	.07	.11	-.07	.63

Table 1 continued:

Amount of school expected	<u>.73</u>	.21	.18	.03	.08	.62
Least amount of school needed	<u>.61</u>	-.03	.05	-.05	.35	.50
Kind of work child will do	.25	-.28	-.23	<u>-.42</u>	-.05	.38
Approval of intellect- ual achievements	.22	.02	-.14	.05	<u>-.39</u>	.22
Desire for college	<u>.57</u>	.09	.09	.16	.05	.35
Percent of total variance explained	.09	.09	.07	.07	.07	.39

Note: The highest factor loading for each item is underlined when the loading is above .50. When the loading is between .31 and .49, a dotted line appears.

TABLE 2
Significant Correlations between CHES Factors and Observed
Father Behavior Factors

CHES Factor	Observed Factor	Sample	N	r
Future Expectations	Boys:			
	Positive Response & Cognitive			
	Stimulation	All Boys	99	.22*
	Empathy & Psych. Manipulation	WC Boys	39	-.43**
	Verbal Restrictiveness	MC Boys	37	-.39*
	Girls:			
	Meeting & Ignoring Explicit Needs	WC girls	32	-.37*
		LC girls	21	.61**
	Attention to Child's Verbalizat-			
	ions	MC girls	28	-.48**
Father Stimulates Child	Boys:			
	Positive Response & Cognitive			
	Stimulation	All boys	99	.31**
		WC boys	39	.31*
	Girls:			
	Meeting & Ignoring Exlicit			
	Needs	LC girls	21	.43*
Mother Stimulates Child	Boys:			
	Positive Response & Cognitive			
	Stimulation	All boys	99	.30**
		MC boys	37	.42**
	Verbal Restrictiveness	LC boys	23	.44*
	Girls:			
	Meeting & Ignoring Explicit Needs	MC girls	28	.37*
	Aversive & Non-aversive Control	MC girls	28	.38*

Table 2 continued:

Verbal Restrictiveness & Request.	WC girls	32	-.47**
Empathy, Psych. Manipulation & Cognitive Stimulation	LC girls	21	.46*
Attention to Child's Verbaliza- tions	All girls	81	.27*

Use of External Resources Boys:

Positive Response & Cognitive Stimulation	All boys	99	.27**
Girls:			
Meeting & Ignoring Explicit Needs	All girls	81	.29**
	MC girls	28	.46*
	LC girls	21	.50*
Aversive & Non-aversive Control	All girls	81	.25*
	WC girls	32	.36*

Grades Expected

Boys:			
Positive Response & Cognitive Stimulation	MC boys	37	.40**
	LC boys	23	.48*
Girls:			
Physical Restrictiveness	All girls	81	-.22*
	LC girls	21	-.46*

*p < .05

**p < .01

TABLE 3

Significant Correlations between CHES Factors and Children's Measures

CHES Factor	Children's Measure	Sample	N	r
Future Expectations	IQ	All Girls	79	.30**
		WC girls	31	.41*
	Piaget Verbalizations	WC girls	32	.41*
	Child Initiates	LC girls	21	.45*
Father Stimulates Child	None			
Mother Stimulates Child	IQ	MC girls	28	.47**
		LC girls	21	.46*
	Child Initiates	MC girls	28	.46**
Use of External Resources	IQ	WC boys	39	.37*
		All Girls	79	.27*
		WC girls	31	.36*
	Child Initiates	All Girls	81	.28**
		MC girls	28	.52**
Grades Expected	Piaget MTP	All Girls	81	.24*
		WC girls	32	.42*
	Piaget Verbalizations	WC boys	39	.32*
		WC girls	32	.38*

*p < .05

**p < .01

Footnotes

¹See cover sheet.

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